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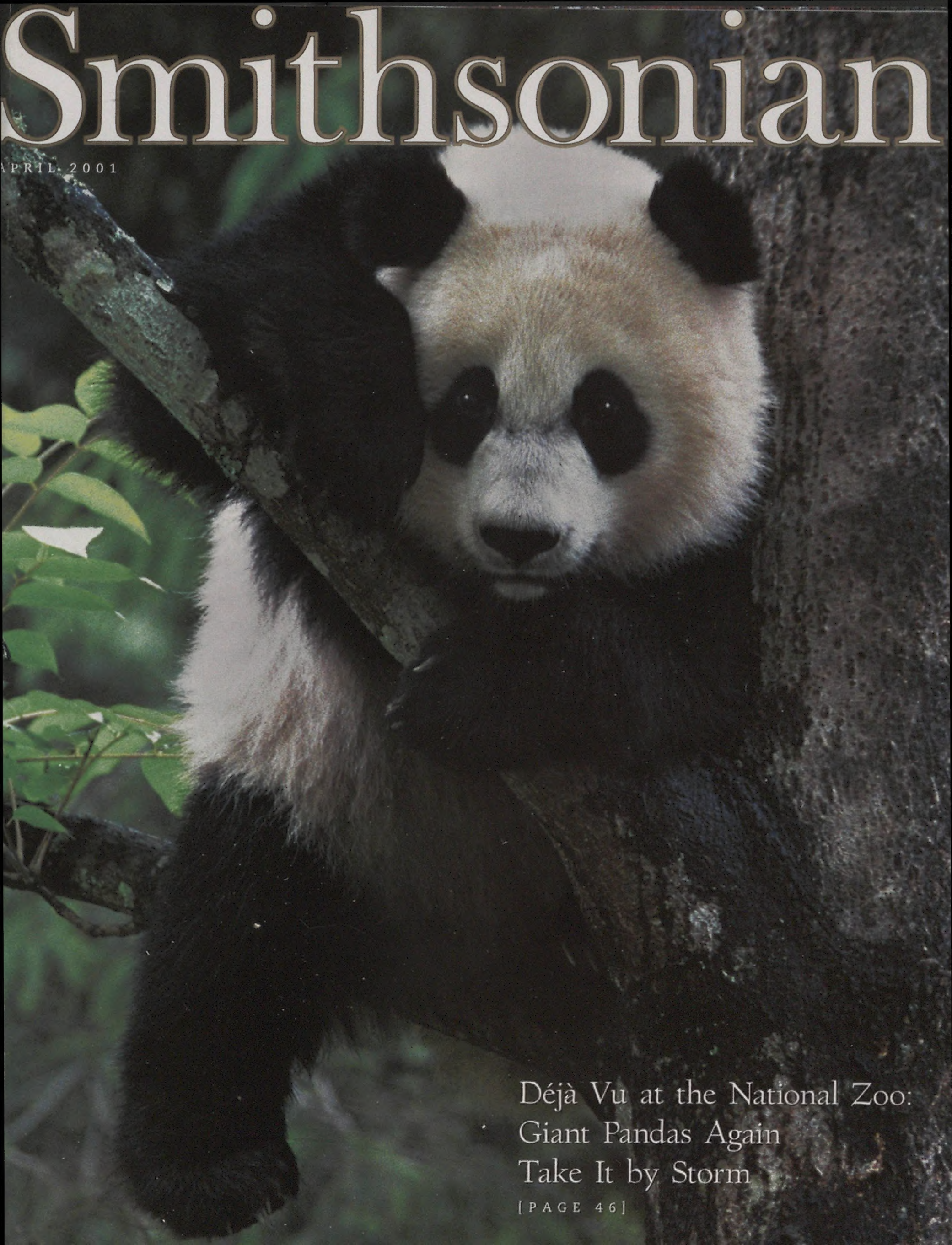

Déjà Vu at the National Zoo: Giant Pandas Again Take It by Storm

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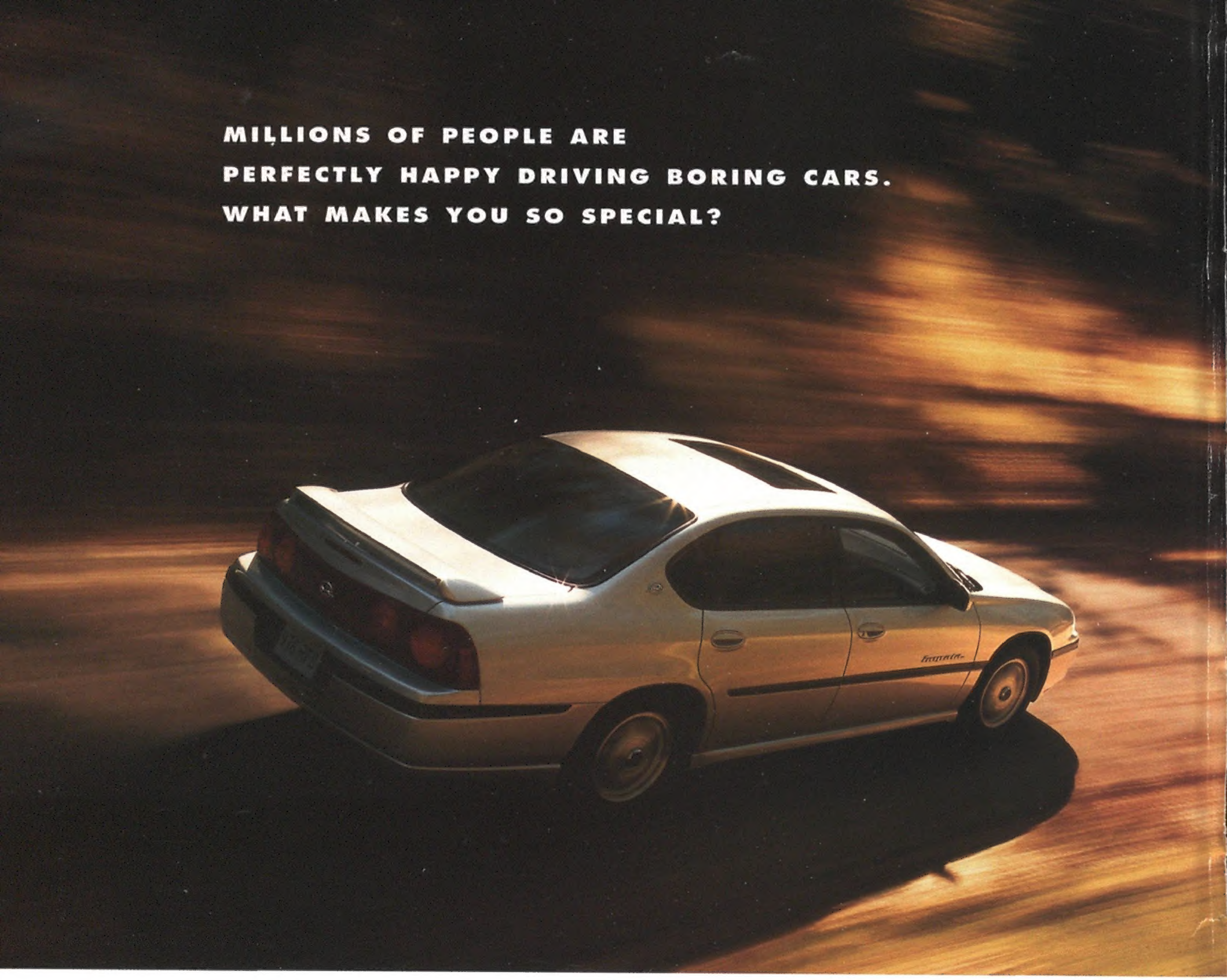

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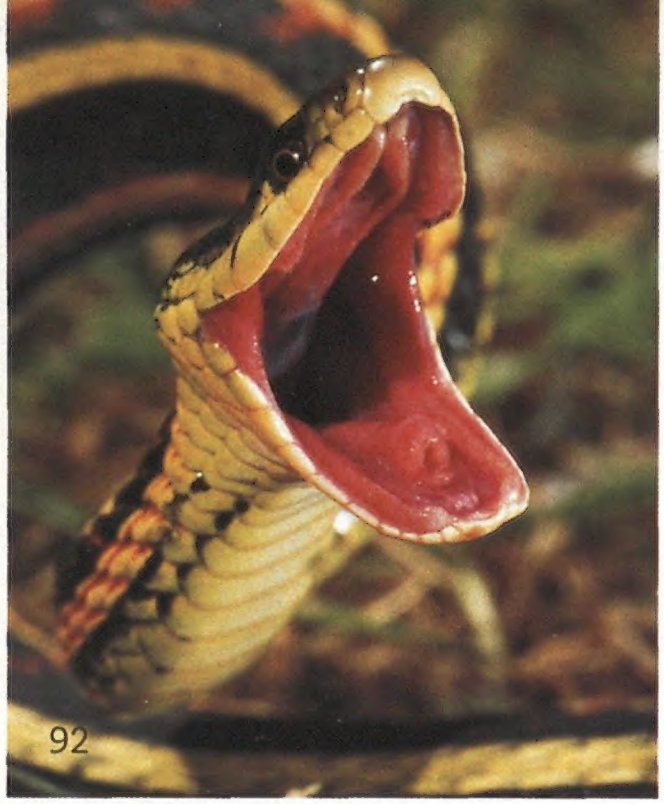

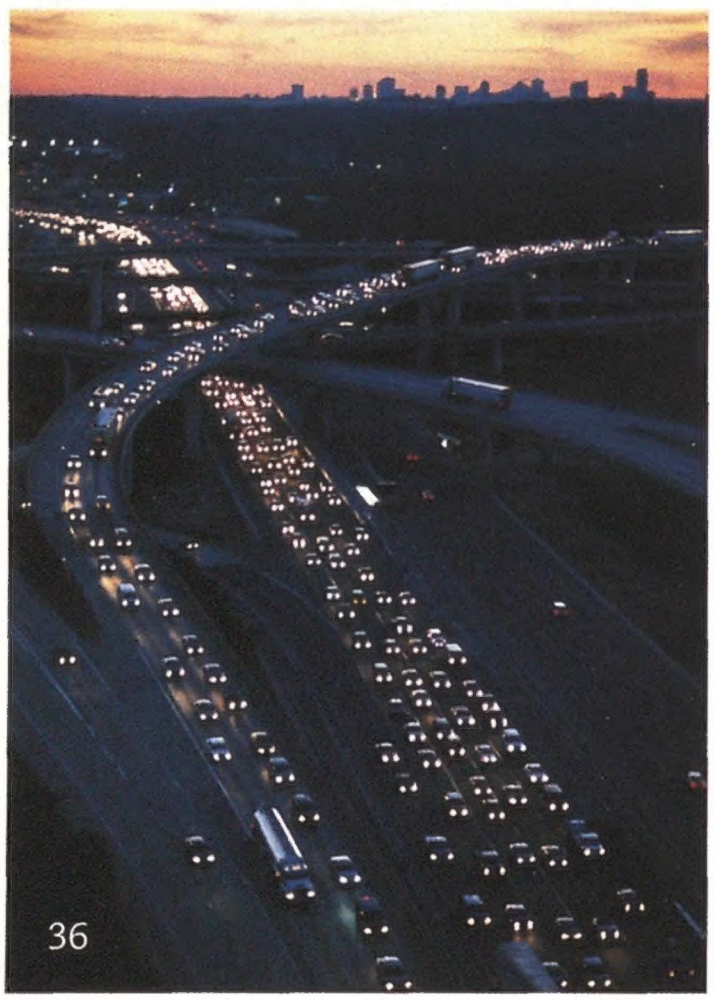

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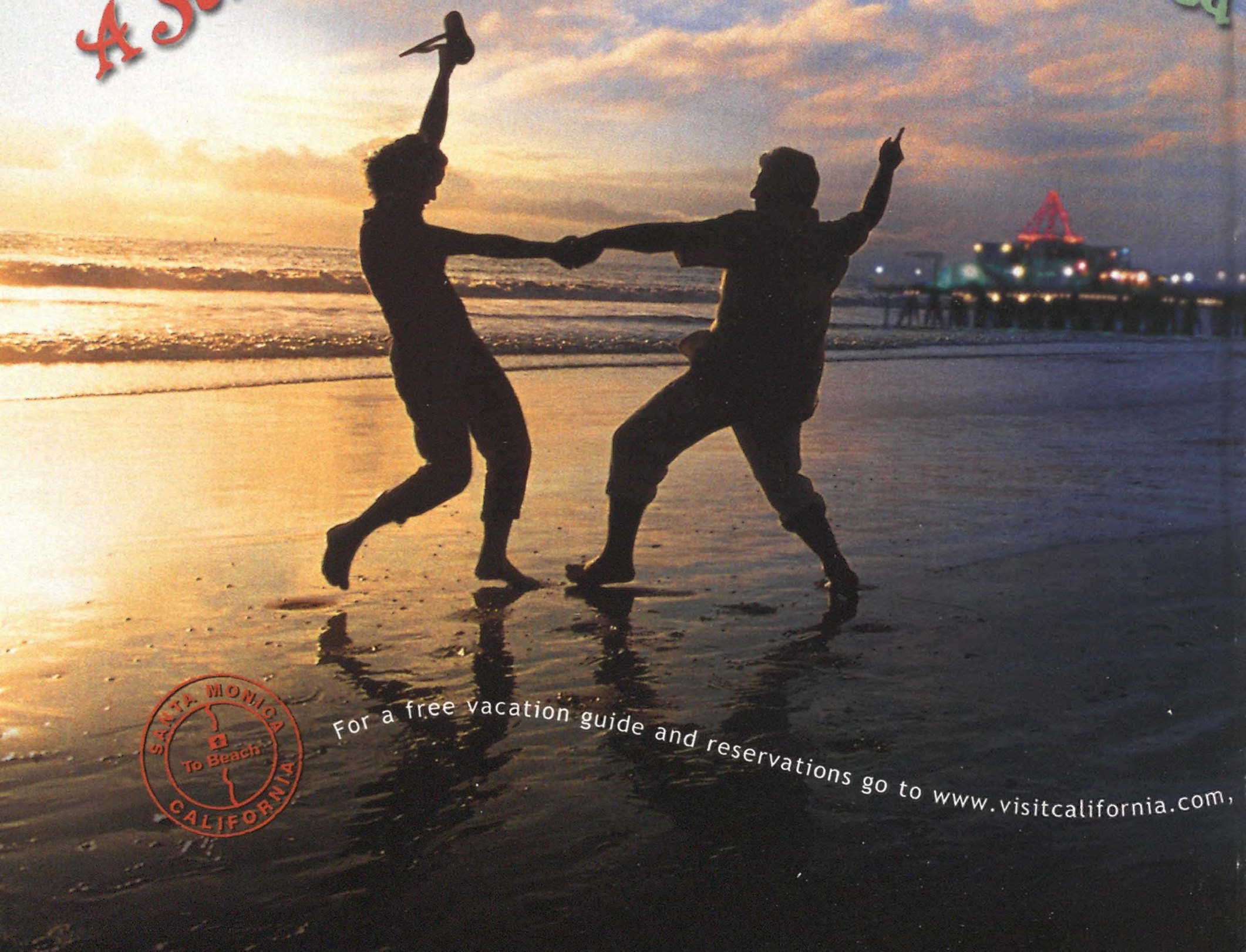

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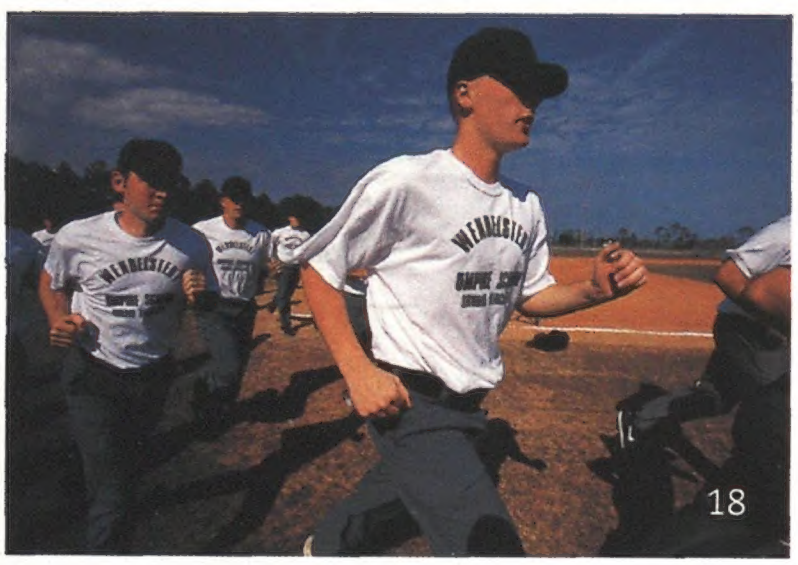

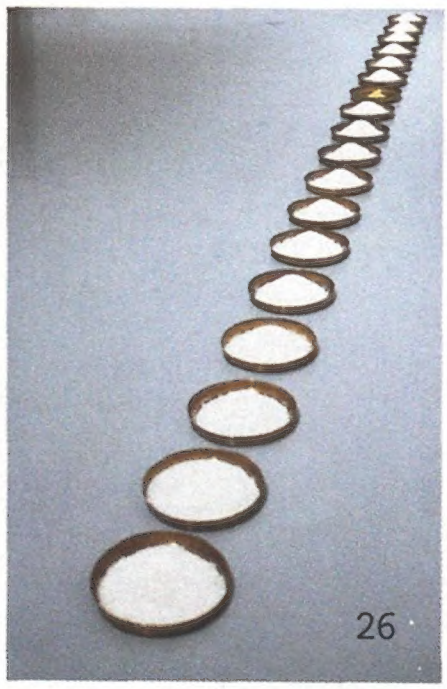

Cover Two-year-old Mei Xiang ("beautiful fragrance") peers out from a tree limb at the China Research and Conservation Center for the Giant Panda in the mountainous Wolong Nature Reserve. She is one of two giant pandas that arrived in Washington D.C. in early December on a ten-year loan to the Smithsonian National Zoo.
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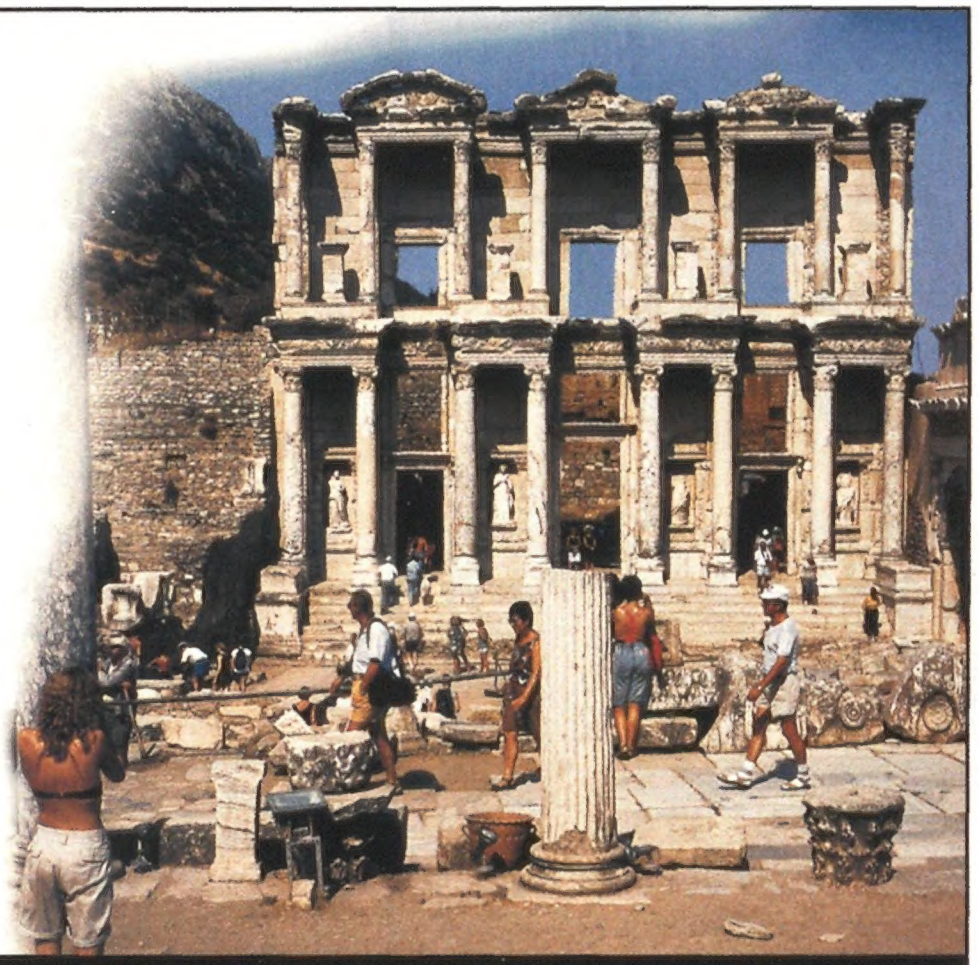

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Keeping Time

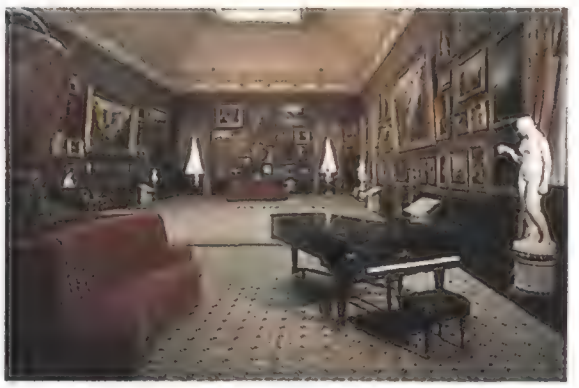
A NOTE FROM THE SECRETARY

THE RENWICK GALLERY OF THE SMITHSONIAN AMERican Art Museum makes as polite a statement of defiance as one could hope for in downtown Washington. Situated on one of the busiest corners of Pennsylvania Avenue—next door to Blair House, across the street from the White House—the Renwick occupies a lavishly embellished French Second Empire building designed in 1858. The conspicuous business of the neighborhood is politics. But high above the entrance to the Renwick, etched in stone, is a reminder to passersby that there's more to life than the hectic Washington moment: "Dedicated to Art."

In fact, the historic location of the Renwick is appropriate to the gallery's mission. As the department of the Smithsonian American Art Museum that collects and exhibits American crafts—objects made of glass, clay, fiber, wood and metal—the Renwick is very much about what's up-to-the-minute (many of the one-of-a-kind objects on display are by living artists). But it is about the past and tradition as well, and one of the grandest things the museum has to display is its own landmarked physical presence.

Works of art come in all shapes and sizes, but apart from the monuments put under wraps by Christo, they don't normally get much bigger than the Grand Salon in the Renwick, which is some 96 feet long and 44½ feet wide and rises 38½ feet to the highest point in the ceiling. The salon was completely restored last year to its take-no-prisoners Gilded Age/High Victorian glory, approximating its original appearance as a picture gallery, and the gorgeous excess is indeed something to see. The Victorians in their literature rarely used one word when two or three might do. In their design, too, more was always preferable to less.

The salon is a larger-than-life Victorian parlor. The walls and newly woven French draperies are in an elegant dusty rose; there's gilding on the furniture and moldings; the plush banquettes at either end of the room circle two enormous French ceramic urns (tall as a human being) that were first displayed at the Centennial Exhibition in Philadelphia in 1876. Paintings from the American Art Museum fill the walls, ascending upward from eye level to neck-craning level, the top of one frame only modestly distant from the bottom of the next.



Wendell Castle's astonishing Ghost Clock and the Victorian opulence of the Grand Salon are highlights of the Renwick Gallery.

The salon is like an extravagant reimagining of a living room from life. And, in that sense, it's not at all out of place among the modern crafted objects on display in the Renwick. Desk, basket, box, tray, pitcher, teapot, bench, gate—so many are objects from life as well, turned fanciful by skill and imagination. We all know what a vase is—or a quilt, or a cup. The Renwick reminds us what each of those practical objects might *aspire* to be.

Among the pieces in the Renwick, there's one in particular that, at first glance, you might think would be right at home in the Grand Salon. *Ghost Clock* appears to be an upright grandfather clock, a little more than seven feet high, draped in a shroudlike sheet such as a Halloween ghost might wear. But look again. The sheet is no sheet, and there's no clock beneath. The piece, sheet and all, was carved from a block of solid mahogany—bleached white to the shade of the sheet—by artist Wendell Castle in 1985. Ominous and looming, mischievous and deceitful, *Ghost Clock* is as astonishing in its illusion as the Renwick's Grand Salon is in its surrender to outsize exuberance.

LAWRENCE M. SMALL, SECRETARY

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SYNESTHESIA

I NEVER KNEW THERE WAS A WORD, "synesthesia," for how I saw and felt life until I read Susan Hornik's article "For Some, Pain Is Orange," which appeared in your February 2001 issue. While waitressing through college I consistently labeled the pie days wrong. The restaurant had color-coded stickers to put on the pie tins to indicate the day the pie was defrosted, but the stickers had the days colored all wrong. Monday is not brown: it is a bluish purple that fades to black at the bottom. Your article made me feel I am not alone.

Christine Braun
Mount Penn, Pennsylvania

MY COLLEGE ROOMMATE AND I DID not know when we graduated in 1962 that there was a name for her gift. She could write a research paper using a box of crayons. There were no words or letters or any realistic pictures or even designs—just unconnected color splotches. She would then take this mess and type a finished paper from it, fascinating both of us.

Addie Kamke Cook
Canandaigua, New York

MY SYNESTHESIA HAS TO DO WITH ice skating—figure skating to be exact. Probably because I still teach at 80, my color associations are as vivid today as they were when I skated. My Lutz used to be a deep red with a strong major key chord that varied with the quality of the jump. My Axel was yellow with a vibrant lemon flavor but with no musical note. The three one-and-a-half flips that finished my final routine were a deep brown. Spinning was always green—different shades of green. And the first time I ever entered an ice rink, the odor was a vivid blue that stayed with me for an hour afterward.

Eugene Turner
Oakland, California

A LONGTIME COWORKER HAS ALWAYS been impressed with my ability to remember long strings of numbers, but she was astounded (and skeptical, I'm sure) when I told her it was because of my involuntary association of individual numbers with colors. I had always assumed this ability resulted from some linkage of colors and numbers, perhaps from multicolored plastic refrigerator magnets, in my early childhood. Then my colleague handed me Susan Hornik's article. I now realize my assumption was incorrect.

I read with rapt fascination how I share so many of the attributes of the synesthetes in your article. Alas, my wife and teenage sons still raise their eyebrows when I try to explain this to them, but I conclude it's because they are green (5, S, Friday) with envy, and I refuse to get either red (3, 8, B, Wednesday) in the face or blue (4, R, Thursday) about it.

Fred Butterfield
Springfield, Virginia

THANK YOU FOR TELLING PEOPLE what synesthesia really is. When I was 17, I read the sonnet "Voyelles" by Arthur Rimbaud, which he had written at the same age. Suddenly I realized that for me, too, vowels had colors. When I asked people whether they saw it this way, I was met with blank stares—except for one friend for whom the notes of the musical scale had colors. She had perfect pitch.

When mentioned in print, synesthesia was called an "affliction." College professors went into acrobatic theories as to what Rimbaud had meant. I wanted to shout that it is an enrichment, that vowels *are* colors. There is no right or wrong in the matter. The phenomenon is individual; my colors and Rimbaud's are not the same.

Suzanne Stahl
Princeton, New Jersey

SEVERAL MONTHS AGO MY DAUGHTER announced at the dinner table that the letter *A* was red, *O* was the color of a Creamsicle, *F* was green, and so forth. She has always amazed, astounded or shocked me, and not just because she's a teenager.

My late father, Ronald Julius Christensen, was an artist, and I always suspected that he thought differently, not just because his trees were purple and his rocks were orange.

I wish my father were still around so we could find out whether genetics plays a role in this wonderful way of seeing things. My daughter says simply, "This is normal!"

Stacy Christensen
Lake Peekskill, New York

CHARLES FRANCIS HALL

JAKE PAGE QUOTED CHAUNCEY C. Loomis, the only biographer of Capt. Charles Francis Hall, as describing Hall's journals as often "'operatic' in tone." The example you cited, however, "My persecutors shall stumble & they shall not prevail; they shall be greatly ashamed; for they shall not prosper," comes directly from Jeremiah 20:11—the King James Version, of course.

Henry C. Boren
Chapel Hill, North Carolina

SAXTON FREYMANN

I WAS CHARMED BY "PLEASE EAT THE Art" by Marian Smith Holmes, about the vegetable creations of food sculptor Saxton Freymann.

In Germany before the war, my parents were friends of sculptor Henry Rox and his wife, Lotte. The couple moved to the United States in the 1930s, and Henry became a professor of art at Mount Holyoke College in

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Brief Summary of Prescribing Information as of February 2000

ALLEGRA©

(fexofenadine hydrochloride)

Capsules and Tablets

INDICATIONS AND USAGE

Seasonal Allergic Rhinitis

ALLEGRA is indicated for the relief of symptoms associated with seasonal allergic rhinitis in adults and children 6 years of age and older. Symptoms treated effectively were sneezing, rhinorrhea, itchy nose/palate/throat, itchy/watery/red eyes.

Chronic Idiopathic Urticaria

ALLEGRA is indicated for treatment of uncomplicated skin manifestations of chronic idiopathic urticaria in adults and children 6 years of age and older. It significantly reduces pruritus and the number of wheals.

CONTRAINDICATIONS

ALLEGRA is contraindicated in patients with known hypersensitivity to any of its ingredients.

PRECAUTIONS

Drug Interaction with Erythromycin and Ketoconazole

Fexofenadine hydrochloride has been shown to exhibit minimal (ca. 5%) metabolism. However, co-administration of fexofenadine hydrochloride with ketoconazole and erythromycin led to increased plasma levels of fexofenadine hydrochloride. Fexofenadine hydrochloride had no effect on the pharmacokinetics of erythromycin and ketoconazole. In two separate studies, fexofenadine hydrochloride 120 mg twice daily (two times the recommended twice daily dose) was co-administered with erythromycin 500 mg every 8 hours or ketoconazole 400 mg once daily under steady-state conditions to normal, healthy volunteers (n=24, each study). No differences in adverse events or QT_c interval were observed when patients were administered fexofenadine hydrochloride alone or in combination with erythromycin or ketoconazole. The findings of these studies are summarized in the following table:

Effects on steady-state fexofenadine hydrochloride pharmacokinetics after 7 days of co-administration with fexofenadine hydrochloride 120 mg every 12 hours (two times the recommended twice daily dose) in normal volunteers (n=24)

Concomitant Drug	*C_{maxSS} (Peak plasma concentration)*	*$AUC_{ss(0\text{-}12h)}$ (Extent of systemic exposure)*
Erythromycin (500 mg every 8 hrs)	+82%	+109%
Ketoconazole (400 mg once daily)	+135%	+164%

The changes in plasma levels were within the range of plasma levels achieved in adequate and well-controlled clinical trials.

The mechanism of these interactions has been evaluated in *in vitro*, *in situ*, and *in vivo* animal models. These studies indicate that ketoconazole or erythromycin co-administration enhances fexofenadine gastrointestinal absorption. *In vivo* animal studies also suggest that in addition to increasing absorption, ketoconazole decreases fexofenadine hydrochloride gastrointestinal secretion, while erythromycin may also decrease biliary excretion.

Drug Interactions with Antacids

Administration of 120 mg of fexofenadine hydrochloride (2 x 60 mg capsule) within 15 minutes of an aluminum and magnesium containing antacid (Maalox®) decreased fexofenadine AUC by 41% and C_{max} by 43%. ALLEGRA should not be taken closely in time with aluminum and magnesium containing antacids.

Carcinogenesis, Mutagenesis, Impairment of Fertility

The carcinogenic potential and reproductive toxicity of fexofenadine hydrochloride were assessed using terfenadine studies with adequate fexofenadine hydrochloride exposure (based on plasma area-under-the-concentration vs. time [AUC] values). No evidence of carcinogenicity was observed in an 18-month study in mice and in a 24-month study in rats at oral doses up to 150 mg/kg of terfenadine (which led to fexofenadine exposures that were respectively approximately 3 and 5 times the exposure from the maximum recommended daily oral dose of fexofenadine hydrochloride in adults and children).

In *in vitro* (Bacterial Reverse Mutation, CHO/HGPRT Forward Mutation, and Rat Lymphocyte Chromosomal Aberration assays) and *in vivo* (Mouse Bone Marrow Micronucleus assay) tests, fexofenadine hydrochloride revealed no evidence of mutagenicity.

In rat fertility studies, dose-related reductions in implants and increases in postimplantation losses were observed at an oral dose of 150 mg/kg of terfenadine (which led to fexofenadine hydrochloride exposures that were approximately 3 times the exposure of the maximum recommended daily oral dose of fexofenadine hydrochloride in adults).

Pregnancy

Teratogenic Effects: Category C. There was no evidence of teratogenicity in rats or rabbits at oral doses of terfenadine up to 300 mg/kg (which led to fexofenadine exposures that were approximately 4 and 31 times, respectively, the exposure from the maximum recommended daily oral dose of fexofenadine in adults). There are no adequate and well controlled studies in pregnant women. Fexofenadine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nonteratogenic Effects. Dose-related decreases in pup weight gain and survival were observed in rats exposed to an oral dose of 150 mg/kg of terfenadine (approximately 3 times the maximum recommended daily oral dose of fexofenadine hydrochloride in adults based on comparison of fexofenadine hydrochloride AUCs).

Nursing Mothers

There are no adequate and well-controlled studies in women during lactation. Because many drugs are excreted in human milk, caution should be exercised when fexofenadine hydrochloride is administered to a nursing woman.

Pediatric Use

The recommended dose in patients 6 to 11 years of age is based on cross-study comparison of the pharmacokinetics of ALLEGRA in adults and pediatric patients and on the safety profile of fexofenadine hydrochloride in both adult and pediatric patients at doses equal to or higher than the recommended doses.

The safety of ALLEGRA tablets at a dose of 30 mg twice daily has been demonstrated in 438 pediatric patients 6 to 11 years of age in two placebo-controlled 2-week seasonal allergic rhinitis trials.

The safety of ALLEGRA for the treatment of chronic idiopathic urticaria in patients 6 to 11 years of age is based on cross-study comparison of the pharmacokinetics of ALLEGRA in adult and pediatric patients and on the safety profile of fexofenadine in both adult and pediatric patients at doses equal to or higher than the recommended dose.

The effectiveness of ALLEGRA for the treatment of seasonal allergic rhinitis in patients 6 to 11 years of age was demonstrated in one trial (n=411) in which ALLEGRA tablets 30 mg twice daily significantly reduced total symptom scores compared to placebo, along with extrapolation of demonstrated efficacy in patients ages 12 years and above, and the pharmacokinetic comparisons in adults and children. The effectiveness of ALLEGRA for the treatment of chronic idiopathic urticaria in patients 6 to 11 years of age is based on an extrapolation of the demonstrated efficacy of ALLEGRA in adults with this condition and the likelihood that the disease course, pathophysiology and the drug's effect are substantially similar in children to that of adult patients.

The safety and effectiveness of ALLEGRA in pediatric patients under 6 years of age have not been established.

Geriatric Use

Clinical studies of ALLEGRA tablets and capsules did not include sufficient numbers of subjects aged 65 years and over to determine whether this population responds differently from younger patients. Other reported clinical experience has not identified differences in responses between the geriatric and younger patients. This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and may be useful to monitor renal function. (See CLINICAL PHARMACOLOGY).

ADVERSE REACTIONS

Seasonal Allergic Rhinitis

Adults. In placebo-controlled seasonal allergic rhinitis clinical trials in patients 12 years of age and older, which included 2461 patients receiving fexofenadine hydrochloride capsules at doses of 20 mg to 240 mg twice daily, adverse events were similar in fexofenadine hydrochloride and placebo-treated patients. All adverse events that were reported by greater than 1% of patients who received the recommended daily dose of fexofenadine hydrochloride (60 mg capsules twice daily), and that were more common with fexofenadine hydrochloride than placebo, are listed in Table 1.

In a placebo-controlled clinical study in the United States, which included 570 patients aged 12 years and older receiving fexofenadine hydrochloride tablets at doses of 120 or 180 mg once daily, adverse events were similar in fexofenadine hydrochloride and placebo-treated patients. Table 1 also lists adverse experiences that were reported by greater than 2% of patients treated with fexofenadine hydrochloride tablets at doses of 180 mg once daily and that were more common with fexofenadine hydrochloride than placebo.

The incidence of adverse events, including drowsiness, was not dose-related and was similar across subgroups defined by age, gender, and race.

Table 1

Adverse experiences in patients ages 12 years and older reported in placebo-controlled seasonal allergic rhinitis clinical trials in the United States

Twice daily dosing with fexofenadine capsules at rates of greater than 1%

Adverse experience	*Fexofenadine 60 mg Twice Daily (n=679)*	*Placebo Twice Daily (n=671)*
Viral Infection (cold, flu)	2.5%	1.5%
Nausea	1.6%	1.5%
Dysmenorrhea	1.5%	0.3%
Drowsiness	1.3%	0.9%
Dyspepsia	1.3%	0.6%
Fatigue	1.3%	0.9%

Once daily dosing with fexofenadine hydrochloride tablets at rates of greater than 2%

Adverse experience	*Fexofenadine 180 mg once daily (n=283)*	*Placebo (n=293)*
Headache	10.6%	7.5%
Upper Respiratory Tract Infection	3.2%	3.1%
Back Pain	2.8%	1.4%

The frequency and magnitude of laboratory abnormalities were similar in fexofenadine hydrochloride and placebo-treated patients.

Pediatric. Table 2 lists adverse experiences in patients aged 6 to 11 years of age which were reported by greater than 2% of patients treated with fexofenadine hydrochloride tablets at a dose of 30 mg twice daily in placebo-controlled seasonal allergic rhinitis studies in the United States and Canada that were more common with fexofenadine hydrochloride than placebo.

Table 2

Adverse experiences reported in placebo-controlled seasonal allergic rhinitis studies in pediatric patients ages 6 to 11 in the United States and Canada at rates of greater than 2%

Adverse experience	*Fexofenadine 30 mg twice daily (n=209)*	*Placebo (n=229)*
Headache	7.2%	6.6%
Accidental Injury	2.9%	1.3%
Coughing	3.8%	1.3%
Fever	2.4%	0.9%
Pain	2.4%	0.4%
Otitis Media	2.4%	0.0%
Upper Respiratory Tract Infection	4.3%	1.7%

Chronic Idiopathic Urticaria

Adverse events reported by patients 12 years of age and older in placebo-controlled chronic idiopathic urticaria studies were similar to those reported in placebo-controlled seasonal allergic rhinitis studies. In placebo-controlled chronic idiopathic urticaria clinical trials, which included 726 patients 12 years of age and older receiving fexofenadine hydrochloride tablets at doses of 20 to 240 mg twice daily, adverse events were similar in fexofenadine hydrochloride and placebo-treated patients. Table 3 lists adverse experiences in patients aged 12 years and older which were reported by greater than 2% of patients treated with fexofenadine hydrochloride 60 mg tablets twice daily in controlled clinical studies in the United States and Canada and that were more common with fexofenadine hydrochloride than placebo. The safety of fexofenadine hydrochloride in the treatment of chronic idiopathic urticaria in pediatric patients 6 to 11 years of age is based on the safety profile of fexofenadine hydrochloride in adults and adolescent patients at doses equal to or higher than the recommended dose (see Pediatric Use).

Table 3

Adverse experiences reported in patients 12 years and older in placebo-controlled chronic idiopathic urticaria studies in the United States and Canada at rates of greater than 2%

Adverse experience	*Fexofenadine 60 mg twice daily (n=186)*	*Placebo (n=178)*
Back Pain	2.2%	1.1%
Sinusitis	2.2%	1.1%
Dizziness	2.2%	0.6%
Drowsiness	2.2%	0.0%

OVERDOSAGE

Reports of fexofenadine hydrochloride overdose have been infrequent and contain limited information. However, dizziness, drowsiness, and dry mouth have been reported. Single doses of fexofenadine hydrochloride up to 800 mg (six normal volunteers at this dose level), and doses up to 690 mg twice daily for 1 month (three normal volunteers at this dose level) or 240 mg once daily for 1 year (234 normal volunteers at this dose level) were administered without the development of clinically significant adverse events as compared to placebo.

In the event of overdose, consider standard measures to remove any unabsorbed drug. Symptomatic and supportive treatment is recommended.

Hemodialysis did not effectively remove fexofenadine hydrochloride from blood (1.7% removed) following terfenadine administration.

No deaths occurred at oral doses of fexofenadine hydrochloride up to 5000 mg/kg in mice (110 times the maximum recommended daily oral dose in adults and 200 times the maximum recommended daily oral dose in children based on mg/m^2) and up to 5000 mg/kg in rats (230 times the maximum recommended daily oral dose in adults and 400 times the maximum recommended daily oral dose in children based on mg/m^2). Additionally, no clinical signs of toxicity or gross pathological findings were observed. In dogs, no evidence of toxicity was observed at oral doses up to 2000 mg/kg (300 times the maximum recommended daily oral dose in adults and 530 times the maximum recommended daily oral dose in children based on mg/m^2).

Prescribing Information as of February 2000

Aventis Pharmaceuticals Inc.
(formerly Hoechst Marion Roussel, Inc.)
Kansas City, MO 64137 USA

US Patents 4,254,129; 5,375,693; 5,578,610

allb0200k 20118607/4022S0

Massachusetts. On the side, Henry created delightful fruit and vegetable "photo sculptures" and also illustrated a few books with these.

In the 1940 Busby Berkeley musical *Strike Up the Band*, starring Mickey Rooney and Judy Garland as teenagers with a lot of energy and musical talent, Henry created a memorable scene in which fruit, nuts and a chocolate cake come to life as Rooney's imagined orchestra and instruments.

Doris Bloch

Olney, Maryland

BLENHEIM PALACE

IN THE SIDEBAR FOLLOWING YOUR article "The House That John Built," you referred to "the world of the manor born." You may have been making a pun, but the original phrase "to the manner born" comes from *Hamlet*, Act I, Scene IV. Hamlet is explaining to Horatio that it would be more seemly for Claudius, Hamlet's uncle and now king of Denmark, to refrain from the usual wassailing. Horatio asks: "Is it a custom?"

Hamlet replies: "Ay, marry, is't. / But to my mind, though I am native here / And to the manner born, it is a custom / More honoured in the breach than the observance."

Christella Urago

Las Vegas, Nevada

In our lighthearted sidebar, we had in mind the popular British comedy *To the Manor Born*. Ed.

ROBERT, LORD CLIVE OF INDIA

IN YOUR ARTICLE YOU USED AN IMAGE of the elephant armor that can be seen in the Royal Armouries in Leeds, United Kingdom. The picture caption gives the impression that this is an 18th-century example of the type; however, the elephant armor is Mughal and dates from around A.D. 1600.

This armor, which when complete would have weighed around 350 pounds, was brought to the United Kingdom from India by Lady Clive, wife of Edward, the second Lord

Clive, Governor of Madras, sometime between 1798 and 1800.

Nicholas Boole
Royal Armouries
Leeds, United Kingdom

ST. JOHN'S COLLEGE

I FOUND THAT THE NARRATIVE OF Edwards Park's article and the photographs by Cameron Davidson, in "Where Plato Is Your Professor," captured the spirit of St. John's College. Under the picture of a Johnnie rower, however, you incorrectly identified me as "Jennifer" Reitz.

Jessica K. Reitz
Annapolis, Maryland

THE OBJECT AT HAND

A PICTURE OF ROBERT GODDARD, IN "Reaching Toward Space," was taken in 1935, not 1945.

Adeline Ward
Shabbona, Illinois

THE LAST PAGE

IN "A GUIDE TO CLICHÉS" BIL GILBERT hit a home run out of the park.

John Ullmann
St. Paul, Minnesota

TO BIL GILBERT, AT THIS POINT IN time, I'd like to say: "Have a nice day."

Ruby Dee Christensen
Cambria, California

WRITE TO SMITHSONIAN

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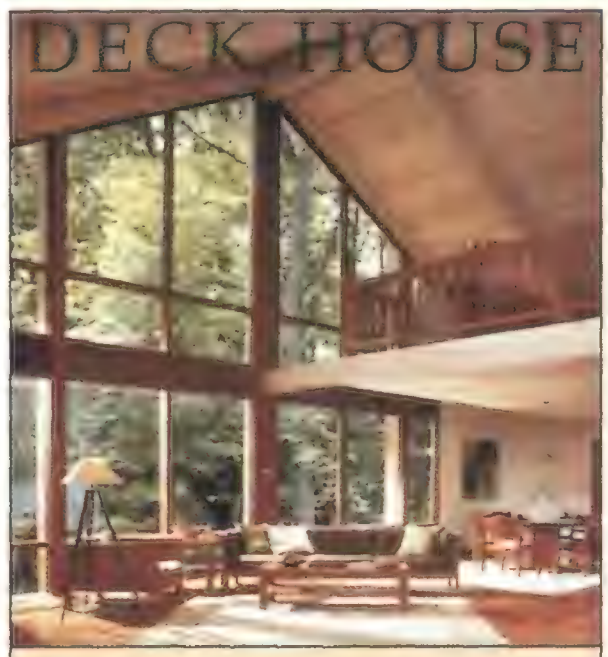

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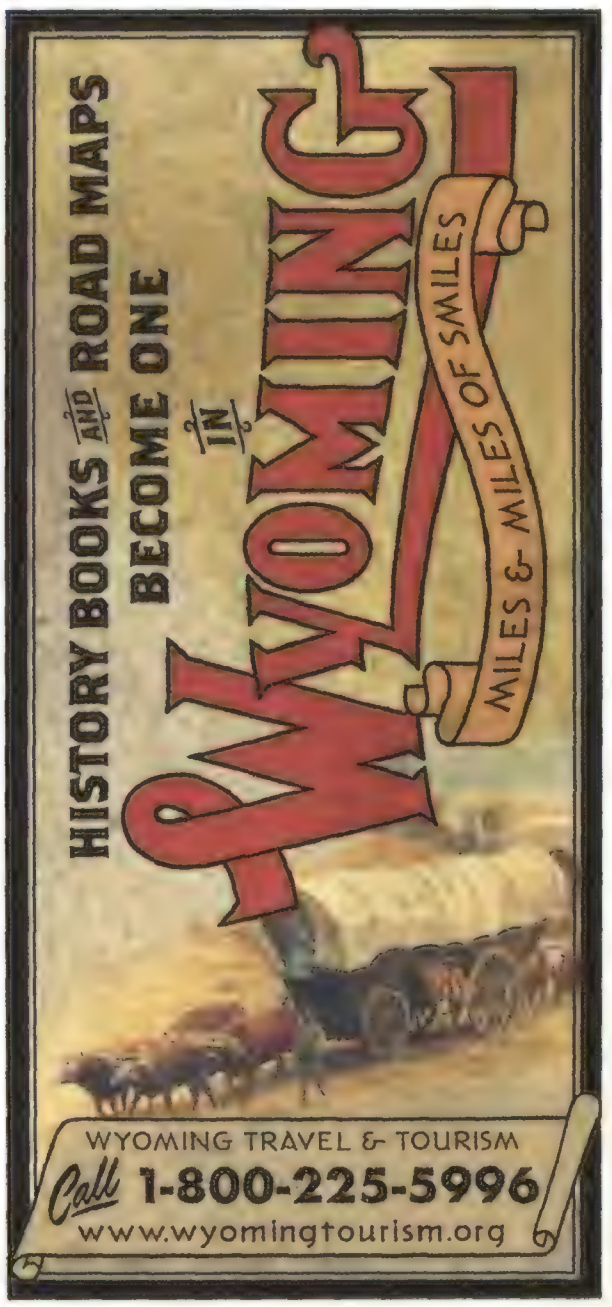

POINTS OF INTEREST

Students of the Game

IN THE CLASSROOM AND ON THE FIELD, ASPIRING UMPIRES DISCOVER HOW LITTLE THEY KNOW ABOUT BASEBALL

BY STEVE KEMPER

Retired National League umpire Harry Wendelstedt (left) knows what it takes to be a pro: sound judgment and consistency. Students who attend his school (right) learn the importance of controlling the game, controlling themselves and mastering a thicket of rules.

"PEOPLE THINK IT'S JUST 'BALL,' 'Strike,' 'Safe,' 'Out,'" says Hunter Wendelstedt, a major league baseball umpire. "But it's not like that."

Too true, as I learned recently during several humbling days at the Harry Wendelstedt School for Umpires in Ormond Beach, Florida. Even "safe" or "out" is no piece of cake. There's a drill at the school in which an instructor fires the ball to first as a runner races down the base path. Every armchair ump in America considers this routine, but the instructor times his throw to make the play tighter than white on rice.

Watching, I get at least a quarter of the calls wrong. If this were a real game, I'd be fending off furious players, for good reason. "You don't get to be a major league umpire unless you have exceptional judgment," says Harry Wendelstedt, who owns the school with his son, Hunter, and was a National League ump for 33 years. "You've got consistency because you've seen thousands and thousands of pitches and plays."

The mental and physical rigors of the first two weeks have sent a dozen students scuttling for home and confounded the remaining 140. "I've been around baseball all my life," says Bill Coble, whose father is an umpire, "and the most difficult thing about this school is realizing how little you really know about the game."

Now, during the third week of the five-week course, the students are making fewer gross mistakes, and the best prospects "are starting to stick out like green lights," says Harry Wendelstedt. They range in age from 18 to the late 40s, but most are in their early- to mid-20s. A few came with the modest aspiration of umpiring high school or college ball; the rest are chasing a grander dream—to turn pro and move up to the Bigs.

"I wasn't good enough to *play* baseball," says Sky Borie, a 20-year-old from Chico, California, "so I came here to pursue the next best thing." Brian Wright, an earnest young Texan, is here for the second time. "I want it more than life itself," he tells me. "You spend three hours a day on a ball field and get paid. It doesn't get much better than that. And I see the way people here look at these profes-

ALL: JASON MILLSTEIN

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Students work out (left) because umpires have to be in shape: unlike players, they don't sit down every inning. Coach Larry Vanover (right), a major league umpire, shows a masked student how to position himself behind the catcher so he can see the entire strike zone.

sional umpires; I'd like people to look at me like that someday."

The Wendelstedts' school has trained more major league umps than any other program. This year it will send about 25 students to the next level, a professional evaluation camp. An equal number will attend from the other certified school, the Jim Evans Academy of Professional Umpiring. About 40 will be offered jobs, all in the lowest rung of the minors, the Rookie Leagues.

Few will reach the majors. Hunter Wendelstedt's estimate is 1 or 2 percent. Those who do make it will pay a lot of dues in the minors. The contrasts are stark. Big league umps fly first class, work in four-man crews, get several weeks' vacation during the season, and make between $86,000 and $260,000 a year, plus bonuses.

Umps in Rookie and Single-A ball, on the other hand, work their tails off in two-man crews, taking the plate every other night. They endure more grief than major league umps because they make more mistakes and because younger players have shorter tempers. After a game, they drive to the next town, which might be ten hours away, where they share a cheap hotel room. They get a few days off per season and make about $2,000 a month. During the off-season they work as substitute teachers or waiters or high school sports officials.

If they're very good—if they show that they can control the game, control themselves, and seldom misconstrue the rules—they may move up a level every two or three years. By the time they reach the highest rung of the minors, Triple-A, where the salary tops off at $3,400 a month, they may still be years away from the Big Show. As more than one of the school's instructors told me, "You gotta love the game."

The school's morning classroom session combines blackboard instruction on some thorny issue, followed by questions from the students and a test on the rules. The rule book is baseball's equivalent of, combined, the Talmud, the Ten Commandments, the Bill of Rights and the Code of Federal Regulations. It contains hundreds of byzantine clauses and subclauses in fastidious prose. ("The pitcher shall deliver the pitch to the batter who may elect to strike the ball, or who may not offer at it, as he chooses.") Every finicky rule can be traced to some conniving player or unforeseen incident that once threw a game into chaos. Chaos is an umpire's mortal enemy, and the rule book is his sword and shield against it. So the students ask questions, and Charlie Reliford, the school's energetic chief instructor, an 11-year veteran in the National League, provides them with scholarly answers.

After the morning skull session, students report to the diamonds. During the first two weeks, they undergo intense field instruction about fundamentals such as positioning, mechanics, timing ("pause, read, react") and voice ("Louder! You gotta *sell* it!"). In the afternoon, they play "control games" in which the instructors concoct situations the students must unravel using the rule book and all the proper mechanics, in correct sequence. From the third week on, the students get tested in action, umpiring high school and college games.

One morning I join a drill focused on balks and obstruction. The rule book devotes more than three pages to balks, a tribute to the ingenuity of pitchers who constantly invent devious new ways to deceive batters and runners and gain an unfair edge. For instance, if a pitcher doesn't come to a complete stop during his windup before throwing to the plate, that's a

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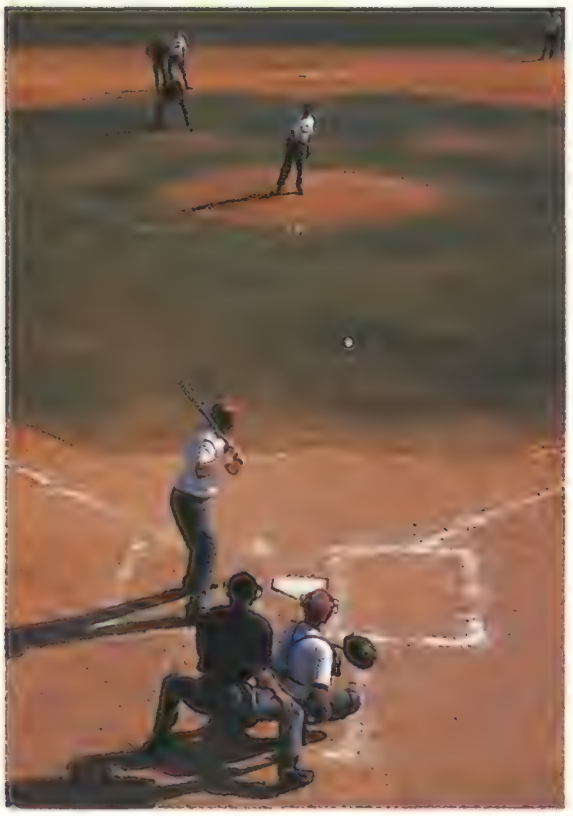

During a mock game (left), instructors impersonating players put student umpires in situations where they have to make tough calls. In a drill at first base, student Reggie Ligons (right) works hard on his technique, gesturing emphatically as he hollers, "Out!"

balk. But if he stops twice, that's also a balk. If he stops with the ball over his head, balk. And once he comes to a full stop, if he so much as flexes a knee, dips a shoulder or twitches anything at all, it's a balk.

So when the pitcher has the ball, the umpire behind home plate and the umpire in the field must scrutinize his every move. "And at the same time," says Andy Roberts, who's tutoring me, "you have to be thinking about potential pick-off plays, potential obstruction, a potential ball-out-of-play on an overthrow, a potential hit and a potential steal." I won't go into the labyrinth of subclauses lurking beneath those seemingly simple words "obstruction," "out-of-play" and "overthrow."

Steve Cox, an ump in the Double-A Texas League, is on the mound impersonating a pitcher. When it's my turn as field umpire, with runners on first and second, I take up my position near second base. Cox winds up. Behind me, Roberts whispers, "There's the balk! *Call* it!"

I raise my arms, yell "Time!" and then point forcefully at each runner in turn and shout, with a tremendous authority I do not feel, "*You!* Third base! *You!* Second base!"—awarding each runner a penalty base. It turns out that Cox committed a balk by sneaking his foot off the rubber during his windup, but I missed it. I'm glad the plate ump missed it too.

"You have to be a good field umpire," says Larry Vanover, a National League ump, "but behind the plate is where you make your money, because you control the game from there. If you can't do that, you'll never move up." And then he offers what strikes me as an excellent description of umpiring: "Everything is geared to knowing what you see."

I watch Vanover instruct a student in the batting cage. "I line my nose up right here," he says, scratching a line in the dirt. Then he nudges the student's right foot forward and says, "You have to get up in the slot. If your head is too far back, you'll miss one on the outside corner. Now relax," he adds with a smile. "You've got a 50-50 chance of making the right call."

When it's my turn in the cage, Danny Cricks, an ump in the Southern League, shows me the checklist he uses to evaluate students: Stance, Timing, Tunnel Vision, Blinking, Flinching, Mechanics, Voice and Judgment. My initial stance, cowering behind the catcher, cuts off my view of the outside corner. Cricks moves me into the slot between batter and catcher and asks how it feels. "Like I'm going to take one right in the face," I say, which no doubt would lead to poor marks under Blinking and Flinching. Steve Cox works on his blinking and flinching by lying in his hotel room with his mask on, throwing a ball up, and letting it land on his face.

The pitching machine flings a ball toward the plate at 75 miles per hour, poky for professionals but plenty zippy for an amateur umpire wearing bifocals. "Ball low!" I yell. Mistake, says Cricks—don't explain or describe your call unless you like arguments. When the next pitch hits the catcher's glove, I shout, "Ball!" but realize a split second later that it was right down the pipe—a strike. "Think first," says Cricks, "then call it."

I slowly improve, and am relieved that in the cage I don't have to worry about runners, balks, checked swings, foul tips, shouting managers and crowd noise. Cricks and Vanover are kind enough to say that I did well. I accept their praise because there's no use arguing with an umpire. And after seeing how complicated the job is, I've vowed never to boo an ump again. At least not until some presbyopic lunkhead miscalls a play for the Yankees against my Red Sox.

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In studies, the most common side effects included cold-like symptoms and headache. Before and during *Avandia* therapy, periodic liver monitoring is recommended because of liver problems with a similar drug. A small percentage of people may experience anemia and/or mild to moderate swelling of their legs or ankles.

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What is *Avandia*?
Avandia is one product in a new class of prescription drugs called thiazolidinediones (thigh-a-zoe-lid-een-die-owns). It is used to treat type 2 diabetes by helping the body use the insulin that it is already making. *Avandia* comes as pills that can be taken either once a day or twice a day to help improve blood sugar levels.

How does *Avandia* treat type 2 diabetes?
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Avandia helps your body use insulin by making the cells more sensitive to insulin so that the sugar can enter the cell.

How quickly will *Avandia* begin to work?
Avandia begins to reduce blood sugar levels within 2 weeks. However, since *Avandia* works to address an important underlying cause of type 2 diabetes, insulin resistance, it may take up to 12 weeks to see the full effect. If you do not respond adequately to your starting dose of *Avandia*, your physician may increase your daily dose to improve your blood sugar control.

How should I take *Avandia*?
Your doctor may tell you to take *Avandia* once a day in the morning or twice a day in the morning and evening. It can be taken with or without meals. Food does not affect how *Avandia* works. To help you remember to take *Avandia*, you may want to take it at the same time every day.

What if I miss a dose?
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Do I need to test my blood for sugar while using *Avandia*?
Yes, you should follow your doctor's instructions about your at-home testing schedule.

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Can I take *Avandia* with other medications?
Avandia has been taken safely by people using other medications, including other antidiabetic medications, birth control pills, warfarin (a blood thinner), Zantac® (ranitidine, an antiulcer product manufactured by Glaxo Wellcome Inc.), certain heart medications, and some cholesterol-lowering products. You should discuss with your doctor the most appropriate plan for you. If you are taking prescription or over-the-counter products for your diabetes or for conditions other than diabetes, be sure to tell your doctor. Sometimes a patient who is taking two antidiabetic medications each day can become irritable, lightheaded or excessively tired. Tell your doctor if this occurs; your blood sugar levels may be dropping too low, and the dose of your medication may need to be reduced.

What should I discuss with my doctor before taking *Avandia*?
You should talk to your doctor if you have a history of edema, liver problems or congestive heart failure, or if you are nursing, pregnant or thinking of becoming pregnant. If you are a premenopausal woman who is not ovulating, you should know that *Avandia* therapy may result in the resumption of ovulation, which may increase your chances of becoming pregnant. Therefore, you may need to consider birth control options.

What are the possible side effects of *Avandia*?
Avandia was generally well tolerated in clinical trials. The most common side effects reported by people taking *Avandia* were upper respiratory infection and headache. As with most other diabetes medications, you may experience an increase in weight (3 to 8 pounds). This often occurs with improved blood sugar control. *Avandia* may also cause edema and/or anemia. If you experience any swelling of your extremities (e.g., legs, ankles) or tiredness, notify your doctor. Talk to your doctor if you experience shortness of breath or unusually rapid increase in weight.

Who should not use *Avandia*?
The following people should not take *Avandia*: People with type 1 diabetes, people who experience yellowing of the skin with Rezulin® (troglitazone, Parke-Davis), people who are allergic to *Avandia* or any of its components and people with diabetic ketoacidosis.

Why are laboratory tests recommended?
Your doctor may conduct blood tests to measure your blood sugar control. In addition, your doctor may conduct liver enzyme tests. *Avandia* did not show signs of liver problems in studies. However, because a related drug (*Rezulin*) has been associated with such problems, and because *Avandia* has not been widely used, your doctor may recommend a blood test to monitor your liver before you start taking *Avandia*, every 2 months during the first year and periodically thereafter.

It is important that you call your doctor immediately if you experience nausea, vomiting, stomach pain, tiredness, anorexia, dark urine, or yellowing of the skin.

How should I store *Avandia*?
Avandia should be stored at room temperature in a child-proof container out of the reach of children. Store *Avandia* in its original container.

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Minding the "Milkstone"

WHEN WORKS OF ART ARE POLLEN AND RICE, AND EVEN MILK, THE HIRSHHORN MUSEUM GIVES THEM EXTRA-SPECIAL CARE

BY MICHAEL KERNAN

Installing one of his works at the Hirshhorn Museum, Wolfgang Laib sifts hazelnut pollen onto the bare floor of the gallery.

KLAUS OTTMANN

IN THE OLD DAYS, AN ARTIST WOULD PAINT A PICTURE, get it framed and send it out into the world. Or, if it went to a gallery or museum, the staff would usually frame it, hang it and take care of it. In any case, the work would be out of its creator's hands for good. But today many artists produce installations, often complex arrangements of objects, sometimes entire environments, that sprawl across a room and perhaps beyond.

So just how much control does the artist have in such situations? And what if the show goes on the road? Most museumgoers have seen exhibitions that consist of stones artfully laid out on the floor, or a stack of bushel baskets, or even a pile of dirt. How can the artist be sure that everything is placed just so, to achieve the intended effect?

An elegant case in point is the retrospective of Wolfgang Laib, a German artist whose work was recently exhibited at the Smithsonian's Hirshhorn Museum and Sculpture Garden. The show went on to Seattle and will eventually travel to Dallas, Scottsdale, San Diego and Munich, not far from where the 51-year-old artist was born.

Laib's chosen mediums are natural materials—milk, marble, rice, beeswax and pollen. Installed in exhibition spaces at the Hirshhorn that spanned more than halfway around the circular second-floor gallery, the 20 objects and 26 drawings evoked a minimalist effect. There was a quiet, poetic aura about the arrangements.

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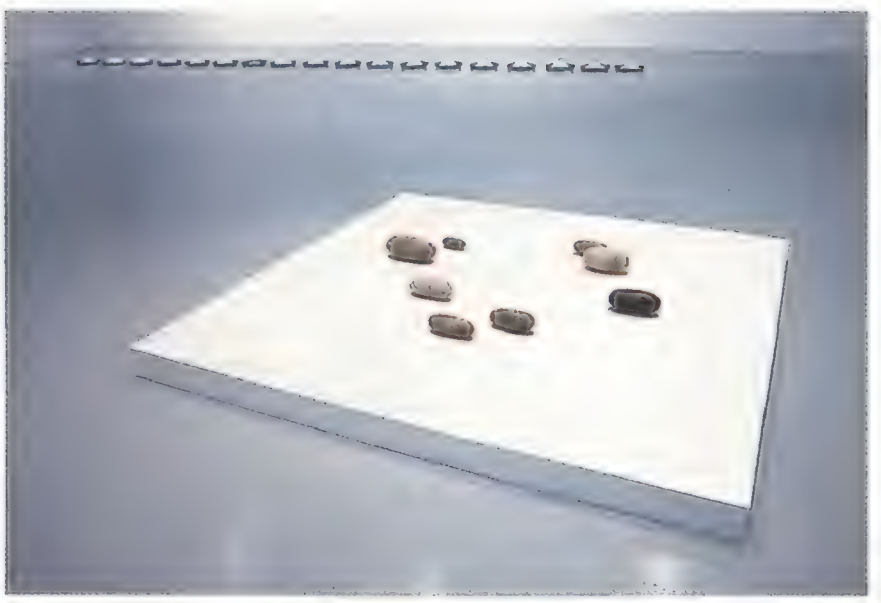

For *Rice Meals* (top), Laib heaped rice and pollen on brass plates often used in India to present temple offerings. *Brahmandas* (above), which features polished stones, recalls a creation myth in which a Hindu deity emerges from an egg.

In one room, a pair of amber-colored ziggurats stood 13 feet high, their steps climbing almost to the ceiling. They were made of beeswax, and the dry, sweetish aroma of the wax recalled the meadows where the bees did their work. The rounded risers bore the nicks of fingers and knuckles. Seemingly constructed from large, solid blocks of wax, they were actually hollow, built on armatures of wood.

The eight polished egg-shaped stones titled *Brahmandas,* and laid out in a pattern on the floor, were inspired, I was told, by a Hindu creation myth. In the next room, a square of brilliant yellow hazelnut pollen had been meticulously dusted onto the floor; its fuzzed edges reminded me of Mark Rothko's rectangles.

And in a chamber guarded by a Plexiglas screen sat a three-foot white square, a slab about an inch high. It was marble, but the surface shimmered with a coating of milk. Farther along I found six wax boats, each about five feet long, ranged on a scaffold high in the air. There was a little house made of wood and red sealing wax and filled with rice. Rice was everywhere, in bowls, sprinkled around brass cones, in 17 dishes, lined up in a row, among which was, mysteriously, an 18th dish filled with yellow pollen. On the walls were some early Laib drawings of triangles and squiggles, equally laconic and baffling.

What was it all about? I figured we would get to that later. The immediate problem for me was: How do you take care of all these perishable things, and how are you going to move them from city to city?

"Well, it's really very labor intensive," said Olga Viso, the Hirshhorn's curator of contemporary art. Because the beeswax had to be softened to affix it to nail-studded plywood walls, a special room was set up with space heaters to bring the wax to 98 degrees Fahrenheit. It took three days to build the armatures. Only then did Laib appear, to bring everything together. He and the staff spent four days applying the wax panels, which are an inch thick.

Wood floors don't work for Laib's pollen installations because of the tiny cracks, so some museums are actually putting in temporary flooring just for his exhibition. The Hirshhorn repainted all of its floors for the show.

"Laib places the pollen," Viso said. She showed me pictures of the artist shifting pollen into a rectangle about 2 feet by 2½ feet on the bare floor. He collects the pollen from fields near his home, a small farming village in southern Germany. After Laib's initial installation, the care and maintenance of the exhibition was left to the museum's curatorial and conservation staffs.

Every morning the conservators went through the exhibition, checking for scratches on the wax and minor damage. There was very little of this, however, because the museum had put on extra guards, who kept an eagle eye on visitors.

Dust collected on the pollen and had to be cleared off with an air can. And bugs were a problem. "You could

TIPPI NICOLE THOLE, SI (2)

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see where an airborne bug landed and then took off, leaving a gouge," Viso said. "And a couple of times there were tiny tracks where an insect had walked across the pollen. We filled in the holes with the extra pollen Laib left us."

When the show opened, there was some concern about all that pollen. Would it aggravate allergies? Exhibition labels alerted visitors, and a nurse explained to the security staff that pollen lying static on the floor was nothing compared with the airborne stuff outside. To make sure that air currents didn't waft any pollen into the atmosphere, several vents in the gallery were closed.

Laib taught Hirshhorn exhibits specialist Catherine Satterlee and other staff the art of pouring milk on a marble surface.

To me, the most fascinating challenge was the care and feeding of the milkstone. The Macedonian marble slab, which Laib had hand-polished and hollowed out ever so slightly, has a lip of perhaps an eighth of an inch. The milk must be poured onto it with great precision, and every evening it has to be cleaned off because the milk sours.

One morning before the museum opened, I watched Beth Skirkanich, an exhibits specialist, refill the stone with fresh milk. Removing her shoes, she stepped beyond the Plexiglas barrier and got down on her knees. She tilted a quart carton and, with slow, circular motions, began pouring milk into the center of the stone.

"You have to concentrate, you have to be patient," Skirkanich said, "or it will spill. It's a deal between the stone and the person doing it. There's a give and take."

As the milk filled the slight depression, she pulled the liquid toward the edges with her fingers, creating a sort of starburst pattern. "It's a little like finger painting," she admitted. Adding more milk, she methodically continued the process until milk hovered right at the edge of the slab but never spilled over. Some 20 minutes and three quarts of milk later, the grayish marble had been transformed into a glistening white field.

"If you spill, you know you're probably not concentrating enough," Skirkanich told me. "The artist trained several of us to do this, and we've talked about it a lot, about how it slows you down. It's kind of a meditative thing to come in to do every morning."

And cleaning it up at the end of the day is not simply mopping up spilled milk, Viso said.

"You take a cheesecloth rag and fold it and soak up the milk, and wring it out, and then refold it and lay it down again. It's very ritualistic. A beautiful process, actually. It's rather like the Japanese tea ceremony."

Several different teams of people helped maintain the exhibition, many of them artists, and to me the fact that they all took to the work so easily was the key to understanding Laib's philosophy that art should be an ongoing, participatory process.

Just what statement is Laib making with his simplistic materials? I read his work as a paean to nature and spirituality. The artist earned a degree in medicine, then rejected the profession because he felt it overemphasized the study of the body and ignored the soul. With his shaved head, slight figure and the saffron robes he sometimes wears, his connection to Eastern religions is obvious.

Why milk? Buddhists and Hindus revere milk as a basic nurturing substance and ritualistically pour it over temple sculptures. And rice? Rice is considered a staple food around the world. In many Eastern cultures it is also a shrine offering. And the purity of its whiteness and its simple shape are elegant design elements. Some see the piles of rice as crowds of miniature people swarming around the little wax houses.

Pollen, to Laib, is another symbol of a pure, elemental substance of nature. But that glowing patch of hazelnut pollen that I saw at the Hirshhorn eventually had to be removed from the floor, rather unceremoniously, with a spatula and a brush once the show closed. Because the pollen had started to clump, Hirshhorn conservator Clarke Bedford dried it overnight in the conservation lab, then laboriously sifted it through cheesecloth to get rid of dirt and lint, and finally packed it in jars for the journey to Seattle. Bedford estimated that he put in at least five hours to conserve the eight to ten cups of pollen.

The exhibition is sponsored by the American Federation of Arts, a nonprofit organization that specializes in taking original artworks on tour. It has made possible the elaborate preparations needed for this installation, allowing the artist to visit the exhibition cities, approve the museum spaces, train the local staffs and help set up the show.

Such a huge effort over little things, piles of rice and pollen, walls of wax, milk. Laib has been called a minimalist, and he is that for sure, but to be able to turn simple objects into a profound meditation, even a spiritual experience, well, that's the whole point of art, isn't it?

TIPPI NICOLE THOLE, SI

JUNE 19

3:00 p.m.

Down the river will be the perfect place to talk
about days gone by and the ones that got away.
Trout will be begging you to take them out of the water.
Moments of absolute perfection will appear.
Will you be here to catch them?

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SMITHSONIAN HIGHLIGHTS

ARTIST JAMES EATON CALLS THIS FANCIFUL weather vane, which possesses the face of an angel but is designed to function in the utilitarian world of agriculture, *Beyond Description*. His title could apply to many of the spirited works in the Smithsonian 2001 Craft Show, a virtual odyssey through art history, memoir, folklore and whimsy.

Held April 26-29 at the National Building Museum in Washington, D.C., the juried exhibition is sponsored by the Smithsonian Women's Committee. According to Signe Mayfield, a curator at the Palo Alto Art Center in California and one of the judges, this year's show reflects several directions of contemporary craft. Representations of form, whether elegant or playful, often express historical, functional or imaginary themes.

James Eaton says he began making weather vanes 12 years ago because "they gave me an excuse to have some fun." Pieces such as the painted aluminum figure above are also created for actual use. "They blow in the direction of the wind because there is greater surface area behind the center than in front," he explains. "And I used the same paint used on Lear jets—designed to last upwards of 40 years."

Many of the works display a seamless blend of art and function: a chest of drawers curves to one side as if endowed with movement, appearing to dance to an unheard rhythm; a pair of skates is transformed into a decorative piece so vibrant and gay it seems to embody a child's spirit; a basket distinguished by clean, simple lines and shaped like an upside-down pyramid reaches both into the future and back into antiquity. (The works may be viewed on our Website at www.smithsonianmag.si.edu) —*Lucinda Moore*

JAMES EATON/SMITHSONIAN CRAFT SHOW

Meet Ms. McPhee's new math tutor.

*King cobra eggs have a 70-day incubation period. If 5 king cobras lay their eggs 7 days apart, then 10 days after these eggs hatch, 7 more king cobras lay their eggs 6 days apart, how long until all the eggs have hatched?**

Who would have thought to use statistical data gathered at the zoo to teach complex problem-solving and to foster a greater appreciation of endangered animals?

As far as we know, fifth grade math teacher Paula McPhee of Covington, Washington is the only one. "Zoorithmetics" has earned her State Farm's Good Neighbor Teacher Award™ and a donation of $10,000 to the educational institution of her choice.

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The Good Neighbor Teacher Award was developed in cooperation with the National Council of Teachers of Mathematics.

*Answer: 214 days.

SMITHSONIAN HIGHLIGHTS

Exhibitions and Events

COOPER-HEWITT, NATIONAL DESIGN MUSEUM
[NEW YORK CITY]

Rooms with a View: Landscape & Wallpaper (April 24 through October 14) A tour through the 300-year history of wallpaper and rooms decorated with landscape views.

NATIONAL MUSEUM OF AMERICAN HISTORY

Nobel Voices: A Celebration of 100 Years of the Nobel Prize (opens April 26) Presents the stories of Nobel Laureates in their own words and draws on the museum's collection of Nobel-related objects, including Albert Einstein's pipe.

The Underwater Web: Cabling the Seas (through March 2002) Exhibition follows the progress of international communication from 1851, when the first telegraph cable was laid on the ocean floor, to the Internet and fiber-optic cabling.

The American Presidency: A Glorious Burden (permanent exhibition) Nearly 1,000 objects associated with the office. Tickets are required; for more information, call 202-786-2122.

NATIONAL MUSEUM OF AFRICAN ART

Encounters with the Contemporary (through January 6, 2002) Works by 32 important African modernists.

ARTS AND INDUSTRIES BUILDING

When the Spirit Moves: African American Dance in History and Art (through June 1) Historical artifacts and works of art show how key characteristics of African dance have come to influence American dance.

HIRSHHORN MUSEUM AND SCULPTURE GARDEN

William Kentridge (through May 13) An artist's take on the recent troubled history of South Africa is revealed in this exhibition of short animated films and 60 charcoal drawings.

ARTHUR M. SACKLER GALLERY

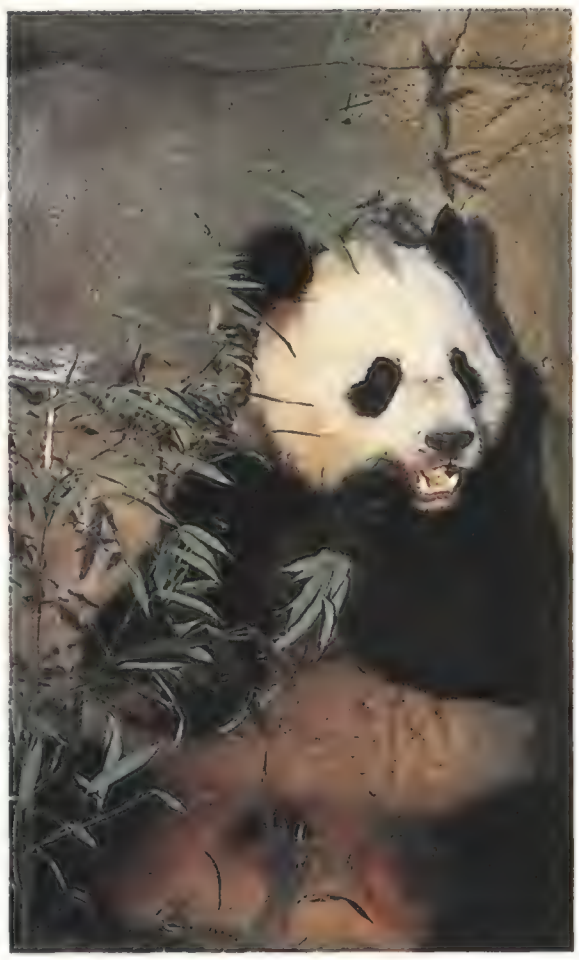
Persepolis: Documenting an Ancient Iranian Capital, 1923-1935 (through May 6) Scale drawings, sketchbooks and photographs from the 1923-35 excavation of the Persian city.

FREER GALLERY OF ART

Real and Imagined Places in Japanese Art (through October 21) Japanese paintings, ceramics and lacquer works from the 12th to the 19th century present views of real and imagined places.

GEORGE GUSTAV HEYE CENTER, NATIONAL MUSEUM OF THE AMERICAN INDIAN
[NEW YORK CITY]

Beauty, Honor, and Tradition: The Legacy of Plains Indian Shirts (through November 4) Explores the symbolic meaning of 49 exquisitely crafted shirts painted and adorned with beads, porcupine quills and ribbon.



Tian Tian, one of two new pandas at the Zoo, treats himself to a bamboo snack.

SMITHSONIAN NATIONAL ZOO

The Giant Pandas (permanent exhibition) The Zoo's new giant pandas from China, Mei Xiang and Tian Tian, are now entertaining visitors. In addition to Fujifilm, Animal Planet and FedEx Corporation, sponsors include Ruth S. and A. William Holmberg, Alice B. Marriott Lifetime Trust, J. Willard and Alice S. Marriott Foundation, Roger and Vicki Sant Fund, The Chubb Corporation and Friends of the National Zoo (FONZ).

Planning a Smithsonian Visit?

To receive a free Associates planning packet, write to Smithsonian Information, Smithsonian Institution, Washington, D.C. 20560-0010, or send your request via e-mail to info@info.si.edu, or call 202-357-2700 (voice) or 202-357-1729 (TTY), 9 A.M.-5 P.M., Monday-Friday; 10 A.M.-4 P.M., Saturday-Sunday, or visit www.si.edu. Note: Museums are generally open 10 A.M.-5:30 P.M. daily, except December 25. Parking is limited; Metrorail is convenient to most museums.

THE CASTLE—INFORMATION CENTER

Upon arrival make your first stop the Castle's Smithsonian Information Center. At the Associates Reception Desk, open 9 A.M.-4 P.M. daily, learn what's new at the Smithsonian and learn about other area attractions too. Receive brochures, hear about your discount privileges and register for a Sunday morning behind-the-scenes member's tour of the Castle.

JESSIE COHEN/NATIONAL ZOOLOGICAL PARK, SI

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The price of convenience: Americans, like these near Atlanta, waste six billion gallons of gas annually while stuck in traffic.

WE'RE IN A jam

EASING THE NATION'S GROWING TRAFFIC CONGESTION HAS EXPERTS ALL BACKED UP

LOOMING OVER A NASA-STYLE CONTROL ROOM IN A WINDOWLESS INDUSTRIAL building in Atlanta is the X-Wall, a ticktacktoe grid of nine giant video screens displaying live feeds from video cameras along the city's highways. At computer consoles here in the nerve center of the Georgia Department of Transportation's traffic division, murmuring operators dispense traffic tips to motorists and dispatch roadside-assistance trucks to move stalled vehicles out of the way. Like nothing else, the X-Wall distills the sluggish, motorized essence of the modern American metropolis: an endless succession of cars and trucks, often moving very slowly or not at all.

Surrounded by chain-link fences, guard posts and camouflaged humvees (the building happens to adjoin a military base), the facility has the air of a command post. But the drivers who are monitored on all these screens aren't troops under anyone's command. They're citizens exercising their free will to drive whenever and wherever. The personnel monitoring the X-Wall are essentially powerless. I gaze up at an overturned tractor-trailer that's been causing tie-ups near the airport for hours. "Yeah," says morning supervisor Brad Mann, "we're fighting a losing battle here."

BY DOUG STEWART ■ PHOTOGRAPHS BY CAMERON DAVIDSON

Georgia transportation officers monitor remote cameras and radar guns at the Atlanta Management Center's X-Wall in order to alert motorists to traffic tie-ups.

Traffic congestion is one of the chief irritants of modern American life. Over the past 20 years, our highway system has barely expanded at all, yet the total number of miles driven annually has nearly doubled. The family car is a memory: there are now more motor vehicles in this country (200 million) than drivers. According to one University of Maryland study, parents spend twice as much time behind the wheel on weekdays as they spend with their children. Trips by mass transit, meanwhile, have dropped steadily. Despite many incentives, carpooling remains unpopular. With more Americans than ever both living and working in widely scattered suburbs, we're wedded to our cars, it seems. No wonder traffic jams have become as unavoidable as death and taxes. The Texas Transportation Institute calculates that Americans collectively waste more than 4.6 billion hours stuck in traffic annually and burn enough gas to fill 134 supertankers.

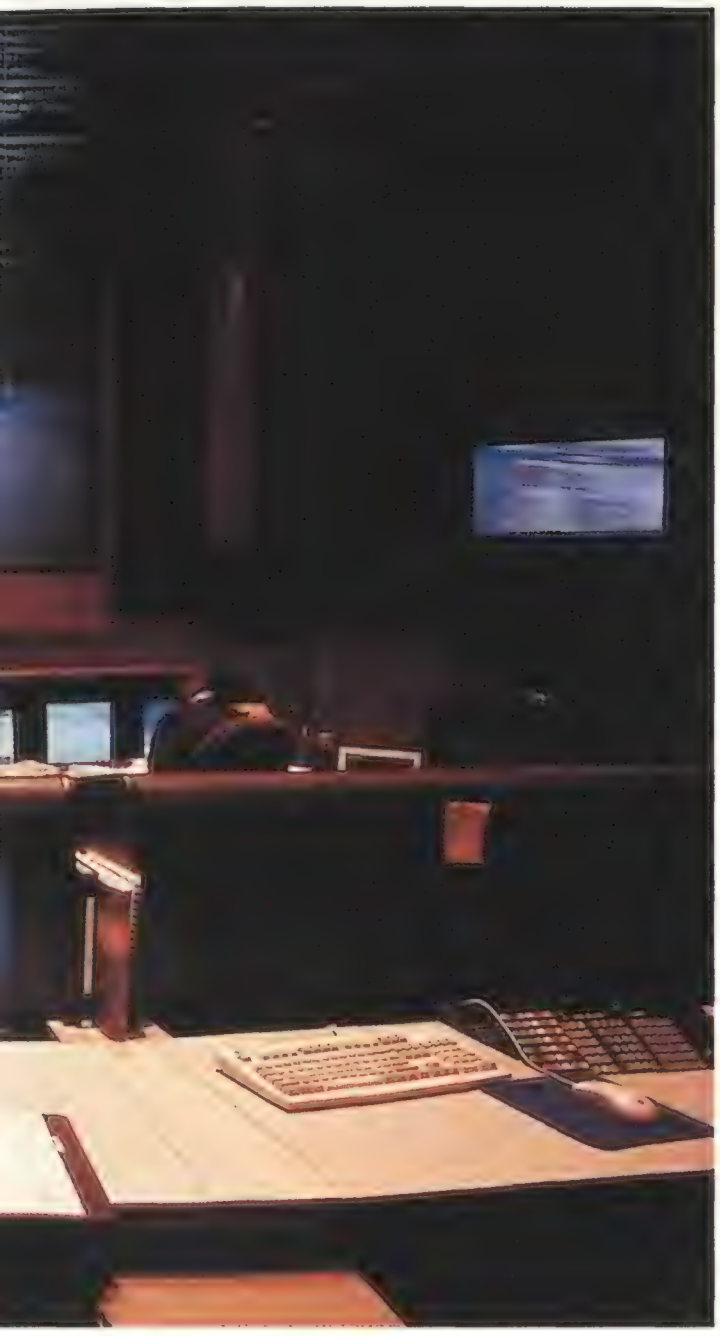
Viewed merely as a physical flow, a traffic jam seems as simple as water moving slower through a constriction. Yet for decades, the behavior of heavy traffic has stymied a think tank's worth of highway engineers, city planners, fluid dynamicists and social scientists. Even adding a lane to a highway, for reasons no one quite understands, sometimes creates new tie-ups. (And, of course, that's after a year or two of jams caused by the lane-widening work itself.) Traffic, like weather and the stock market, turns out to be surprisingly complex and devilishly unpredictable.

A little historical perspective is in order. Traffic in ancient Rome was bad enough to warrant a downtown ban on daytime chariot-driving. In New York City in 1900, horses deposited 2.5 million pounds of manure on the streets every day, along with 60,000 gallons of urine. "Cars were seen as cleaner and more compact than a horse and carriage," says Northeastern University historian Clay McShane, who unearthed these statistics. But the Model T soon helped turn busy urban intersections into dangerous free-for-alls. The traffic light and the stop sign, both appearing in 1914, were more effective than a cop with a whistle, but urban traffic was still a mess.

General Motors' Futurama exhibit at the 1939 New York World's Fair predicted an end to congestion and collisions. Under automatic guidance from traffic control towers, cars would shoot through high-speed intersections in all four directions at once, just missing one another like bullets whizzing through the propeller of a biplane. In his 1940 book *Magic Motorways*, the Futurama's proud designer, Norman Bel Geddes, described lanes of 50-, 75- and 100-mile-an-hour traffic swooping down from the Rockies on a huge national highway and approaching Portland, Oregon, where "they meet the great Pacific Coast Motorway and merge in a sweeping non-stop intersection."

Bel Geddes' automotive utopia seems quaint if not comical today. He failed to anticipate the postwar population explosion. Nor did he imagine what a city dominated by roaring, fume-spewing 20-lane highways would be like. (The miniature roadways in the GM model were a chaste and blemish-free white.) Bel Geddes certainly never foresaw a market for the Road Rage Protection Package.

"It's a fairly inexpensive system," says David Applegate, owner of Bulldog Direct, a Cincinnati company



that will armor your car for $4,000 and up. "You can even hit the glass with a baseball bat all day long." Applegate takes a nonutopian view of U.S. vehicular traffic. He goes out every morning to get coffee in his armored pickup. "It's a two-mile round-trip. I can't go out without seeing someone run a red light or cut someone else off." Yes, people are testy out there, he says, and they're getting testier every year. "Our sales show that."

Traffic is more than machines in motion. It's people interacting with one another, often in weird and antisocial ways. Frustration builds when obstacles appear suddenly and unexpectedly: the dreaded mystery jam. At the tail end of rush hour one morning 20 miles north of Manhattan, I watch a young woman with curly blonde hair in a white sedan who's late for work. Racing northbound on the Sprain Brook Parkway, she's weaving in and out of heavy but fast-moving traffic like a slalom racer. "The subject is traveling at approximately 78 miles an hour, and she's tailgating," says Andre Bailey into a body mike, dictating his observations onto videotape for the record. He then radios Charles Byer, who sits three miles up ahead in a patrol car. Bailey is coordinating a four-car New York State Police aggressive-driving patrol this morning. His unmarked van has hidden video cameras mounted front and rear to record what he calls auto high jinks. "When people exhibit aggressive behavior—excessive speed, following too closely, failing to signal, unsafe lane changes—it can lead to what we call road rage on the part of other drivers," he tells me. "The aggressive driver is the catalyst."

Up ahead, a sea of red brake lights suddenly rolls toward us. In the sedan we're tailing, the blonde woman throws one arm up in fury as she, too, hits the brakes. What had been an almost uniformly fast but dense flow has inexplicably crystallized into a near-solid mass of crawling traffic. A mystery jam! Physicists have lately been studying the phenomenon, using data from sensors embedded in highways and applying the arcane tools of chaos theory to try to predict why it occurs. Less abstract thinkers suggest most mystery jams aren't really very mysterious. A motorist glances at something at the side of the road and taps the brakes for an instant. The motorist behind does the same but a bit longer, and so on. The distraction could be a dog trotting along the shoulder, a windblown piece of paper—or, in this case, Byer's idling patrol car over the next hill, which has moved into position to nab a certain white sedan. The blonde woman hasn't figured it out yet, but she caused this jam herself.

The underlying problem is that America's roadways are funneling more vehicles than they were ever meant to. With perverse pride, residents give nicknames to major urban choke points: the Orange Crush in Orange County, California; the Hillside Strangler in Chicago; the Mixing Bowl outside Washington, D.C. A typical motorist in Washington, in fact, now loses more hours to traffic delays—82 each year—than one in any other city, including Los Angeles (76). After Dick Cheney suffered a heart attack last November, one of his surgeons had to race along the highway's shoulder to get to George Washington University Hospital's operating room in time.

Fed by frustrated commuters, a market for onboard gadgets to outwit traffic jams is exploding. "The reason you have bottlenecks is because you have uninformed motorists," says Tim Lavoie of Tim's Car Electronics in Springfield, Massachusetts, after he wires a $1,600 Clarion Auto PC into the hole in my car's dashboard where the FM radio normally fits. The borrowed gizmo is a Pentium computer, voice-controlled radio and CD player, and Global Positioning System (GPS) all rolled into one. Lots of fancy vehicles these days have GPS, which tracks your position to within a few dozen feet and gives you turn-by-turn instructions. The Auto PC, however, has software from a company called Infogation that receives radioed traffic updates and then uses this information to reroute you automatically around tie-ups.

Thus armed, I venture onto Boston's rusting elevated highway, the Central Artery, during a typically nightmarish evening rush hour. My destination is north and home. Auto PC's computerized voice orders me to get off at the next exit, then make a left onto North Street. Is this thing

Veteran Atlanta traffic reporter Keith Kalland, who spends between four and five hours aloft every weekday, finds that the worst accidents occur during the lunch rush hour.

kidding? That's a cobblestoned street in Boston's mazelike North End. In the interests of research, I do what I'm told.

"Make a right to go onto Hanover Street," says the cyber voice. Mystified, I follow orders. I'm heading for the tip of a peninsula surrounded by the Atlantic Ocean. How is this getting me home? "Make a left to go onto Commercial Street." I'm now doubling back along the harbor. Then I notice that for the past several minutes I've seen no other moving cars, and it's the heart of rush hour. Within minutes, by obeying the gremlin in my dashboard, I'm flying along the northbound highway, headed for home. Did the Auto PC, knowing that my original route was obstructed, find me an ingenious shortcut? Or was it so dumb that it picked a cockamamy zigzag that no sentient human would ever dream of? Either way, it worked for me.

Devices like this, and Websites that display traffic maps, don't solve congestion problems. They just promise you a slight edge over people who don't use them yet. Eventually, when all roads are equally clogged, we'll have nowhere left to go. Atlanta may arrive at this point first. Drivers there now have the longest average commute in the nation—35 miles a day. And more than half of its drivers spend an additional hour or more in the car running errands as well. In a recent survey, Atlanta voters named traffic congestion as the city's number one problem four times as often as any other issue. Websites have popped up to let motorists vent, especially about Interstate 285, the perimeter highway. A visitor to www.285sucks.com reported seeing a hearse traveling in one of Atlanta's little-used high-occupancy vehicle (HOV) lanes. "Does the body in the back count as the second person?" he asked. "Is that really fair?"

To see what all the vitriol is about, I join Keith Kalland for a helicopter tour of the city's afternoon rush hour. A burly man with the high-decibel voice of an opera singer, Kalland does on-air TV and radio reports for the Total Traffic Network. Interstate 85, well outside the perimeter, is already a frozen river of metal reflecting the smog-filtered afternoon sun. Rising like a hazy apparition is Spaghetti Junction, a huge tangle of airborne ramps where I-85 meets I-285. Traffic, as usual, is backed up for miles in every direction.

To prepare for the crowds drawn to the 1996 Olympics, the city encouraged rapid-transit use, telecommuting, satellite offices, staggered work hours, company-run vanpools and other measures to keep the city's traffic arteries from congealing fatally. "The best traffic we ever had was during the Olympics," Kalland booms. "It was beautiful. Rush hours were nonexistent!" Atlantans, however, soon resumed their old ways. Part of the trouble is a rapid-transit system that serves only 2 of greater Atlanta's 13 counties. Plus, he says, "we don't carpool real well here. We've got three and a half million people, and 2.4 million of them are one to a car."

The exhaust from these vehicles has contributed heavily to Atlanta's abysmal air pollution: the city suffered a record 70 days of excessive smog in 1999, including 37 in a row. That year, Governor Roy Barnes pushed through legislation creating a new superagency, which gave power to the state to block new highways, malls, and commercial building complexes approved by the region's often fractious local authorities.

Just the same, I'm amazed by all the construction going on below us: high-rise skeletons topped with cranes,

A half-dozen roads and 14 ramps create the tangle of aerial concrete in Atlanta known as Spaghetti Junction (opposite), which has become one of the nation's busiest interchanges.

Beloved by Atlantans, several dozen Highway Emergency Response Operators work rush hours, pushing stalled cars off the roadways and even delivering the occasional baby.

several giant malls abuilding, and everywhere bulldozed expanses of red Georgia clay like raw wounds. "See, they're still putting up more buildings," Kalland tells me after delivering a rapid-fire litany of wrecks and tie-ups to his television audience through a cockpit video camera, "and these roads are not nearly big enough for the traffic we already have."

In the long run, even if tailpipe emissions weren't a problem, adding new roads and widening old ones wouldn't necessarily ease congestion. Says Michael Replogle of the advocacy group Environmental Defense, "Trying to build your way out of traffic congestion is like trying to deal with being overweight by buying bigger pants." With fresh asphalt beckoning, people start driving who used to take trains and buses (or stayed home); they make a point of driving the new route, and they drive more often. In other words, if you build it, they will come. Economists call this "latent demand."

Traditionally, planners have had to oversimplify traffic flow in order to study it. Scientists at the Los Alamos National Laboratory in New Mexico are now piecing together an elaborate model called TRANSIMS, or Traffic Analysis and Simulation System, that simulates the whole caboodle, latent demand and all. The Los Alamos lab, best known for its atom bombs, is tucked away on a set of remote finger mesas northwest of Santa Fe (an area not noted for its traffic jams). With the Cold War over, the lab has been looking for new uses for its computer hardware and expertise.

"Traffic turns out to be a wonderfully hard thing to simulate," says project leader Chris Barrett. "There are lots of different things running around, and they have people in them." Using true-to-life details gleaned from census forms, travel surveys and other sources, TRANSIMS can now generate a synthetic population for the entire city of Portland, Oregon. Says project coordinator Ron Smith, "These synthetic individuals go to work, go to school, go shopping, go out to eat. Some drive, some walk, some take the bus, some park and ride." TRANSIMS follows them through their day, as they look for parking spaces or miss their buses.

The model doesn't actually show little animated Portlanders doing these things. What it does show is where each hypothetical person and vehicle is at one-second intervals throughout a generic weekday. Researcher Phil Romero shows me a fast-motion model of Portland's streets on one of the monitors crowding his office. In this bird's-eye view, cars are dots. With thousands of dots in motion, it reminds me of a gigantic ant farm. Romero clicks his mouse to zoom in on an intersection. "That little rectangle moving along the street is a bus," he says. We watch it stop at a bus stop. The rectangle is half purple and half white. Now the purple section shrinks to a sliver, like mercury dropping in a fast-cooling thermometer. "Those are people getting off. When a bus empties out, it goes all white." Behind the bus, cars are bunching up. I don't hear any horns, but I'm sure it could be arranged.

TRANSIMS' imaginary motorists are cellular automata. That is, they're not following a script. They're making their own decisions from moment to moment, all the while trying to accomplish a set of tasks, time and traffic permitting, such as dropping children off at school or visiting a mall. Tasks vary according to an individual's income, occupation and so forth. On the road, everyone abides by a simple set of rules. One is that every driver will slow down occasionally for no reason whatsoever. Oddly enough, the Los Alamos group has found this mimics admirably the real-life behavior of a road full of motorists, some fraction of whom are always struggling to decipher road signs, wondering if they've forgotten something, eating and, of course,

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Virginia and the federal government will pour a half-billion dollars into Springfield's notorious Mixing Bowl to ease congestion.

talking distractedly into cell phones.

A commercial version of TRANSIMS will soon be available to city planning offices. Before widening a road, planners could see how many people have to-do lists that would prompt them to start using it—and how the change would affect emissions. In the long run, it could help planners predict the ways in which a city and its suburbs will grow.

There are other traffic technologies aimed not at city planners but at cars and drivers themselves—"maximizing throughput," as the engineers say. High-tech improvements such as electronic message boards on highways, automated toll collection and variable traffic lights that keep tabs on who's waiting can help limit traffic congestion (SMITHSONIAN, April 1986). In a test by a public-private consortium in 1997, a string of eight driverless Buicks sped down a stretch of closed freeway in San Diego separated only by a few feet. Onboard computer controls, wireless transmitters and anticollision sensors kept the cars in line as though linked by invisible tow bars. "It was really exciting for the first 15 or 20 seconds," says Jim Rillings, program manager of General Motors' intelligent-transportation group, who rode in one of the cars. "After that, it was boring." Platooning, as it's called, could obviously pack more vehicles onto a highway by closing up gaps, but for now carmakers aren't following up on this technology.

If American motorists continue to participate in traffic jams (and those who cause them and those who suffer them are largely the same people), it may be that drivers—despite their often vocal protestations—don't really find them all that unendurable. In a recent national survey, 45 percent of respondents agreed that "driving is my time to think and enjoy being alone." In another study, drivers preferred a commute of at least 30 minutes each way. A shorter trip kept them from falling into road zen, the flip side of road rage.

"The car is less a form of transportation now and more an extension of the living room," says Gridlock Sam, aka Sam Schwartz, the former New York City traffic commissioner who coined the term "gridlock" during the city's 1980 transit strike. "You've got a speaker phone, a fax, e-mail, television." Not to mention bucket seats, an ashtray, music of your choice, maybe the *Odyssey* on tape. "It lets people do things they shouldn't in their right minds tolerate." Like sit in traffic for hours a day.

Perhaps we need traffic congestion. It keeps us from putting more cars on the road than we already do. In any case, says Anthony Downs, a Brookings Institution economist and author of *Stuck in Traffic*, "congestion is an unavoidable part of modern life in any urban area in the world." If you think Seattle or Houston is bad, he says, try Bangkok. The average speed at rush hour there is nine miles an hour. Gas stations sell brightly colored portable urinals to motorists expecting to be stuck in traffic for several hours. "Our traffic isn't that bad," says Downs. "We may as well get used to it."

Regular contributor Doug Stewart commutes up and down two flights of stairs in his Massachusetts home. Photographer Cameron Davidson prefers flying to work in a Bell JetRanger.

She's 60 and takes calcium.
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not good enough.

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RETURN OF THE PANDAS

AFTER MOVING FROM WOLONG TO WASHINGTON, MEI XIANG AND TIAN TIAN ARE PACKING THEM IN AT THE NATIONAL ZOO

With a presidential inauguration less than two weeks away, all eyes were on the new first couple, making their Washington debut. The pair proved themselves a model of appropriate behavior that bright, blustery January day. First, he nuzzled her head with his. Then, she swatted him. Next, he nipped at her neck. Then, she sank her teeth into his ear and held on tenaciously. She let go; he bleated happily.

While a certain other couple tied up loose ends in a distant state capital, 2-year-old Mei Xiang (may sh-ONG) and 3-year-old Tian Tian (t-YEN t-YEN) just kept on at their rough-and-tumble on the day their monthlong quarantine ended at the Smithsonian National Zoo. Appearances aside, though, the giant pandas had much in common with many other celebrity couples, political and otherwise: a crowd of onlookers to scrutinize their every move, for one. Their own plane—in this case a FedEx jet named PandaOne that whisked them in from China's Sichuan Province for their ten-year stay in Washington. A big bankroll—$1 million a year, all from private donors, to fund both their loan to the Zoo and conservation projects to improve giant panda reserves in China. FedEx made its PandaOne available for free. Fujifilm will fund a new state-of-the-art climate-controlled habitat for the pandas, and support conservation. Television's Animal Planet will do four one-hour documentaries on the pair, the first of which will air on April 22.

At the Zoo, the pandas tackled, grappled and rolled downhill in a blur of black and white, end over end, to the front of their enclosure. "Ooohh," exhaled the crowd. "Wow," said the normally articulate National Zoo director Lucy Spelman. Researchers have identified 11 distinct vocalizations that giant pandas make. In their presence, humans seemed reduced to about as many. Tian Tian and Mei Xiang had their audience, so to speak, under their thumbs—actually, enlarged wristbones, or radial sesamoids, that function as opposable thumbs, allowing giant pandas to manipulate objects.

Tian Tian stands over Mei Xiang in the Zoo's refurbished giant panda enclosure.

BY LESLIE ALLEN ◆ PHOTOGRAPHS BY JESSIE COHEN

One panda-costumed little girl

says she has 178 panda objects at home; a grown man boasts of 48. Pandas are one of the world's most popular animals.

big eyes, softness, roundedness, even a hint of clumsiness.

Small wonder, then, that the crowds line up patiently for a chance to go gaga over Mei Xiang and Tian Tian—just as they did for their late predecessors at the National Zoo, Hsing-Hsing and Ling-Ling, who arrived in 1972 as a gift from China. One panda-costumed little girl at the rail says she has 178 panda objects at home; a grown man boasts of 48. Pandas are one of the world's most popular animals, and they're also, seemingly, among the most familiar. From backpacks to cookie jars to conservation logos, their image abounds.

The grand irony, of course, is that giant pandas are extremely rare. Logging and agriculture have wiped out almost half of their remaining mountainous, bamboo-covered habitat in southwestern China over just the past two decades. Now, some 1,000 giant pandas survive in the wild—but that's only a guess, because there has been little fieldwork. Quiet and elusive to begin with, pandas inhabit steep, forested, remote terrain that is difficult for humans to negotiate. And until about 1980, the political landscape was even less hospitable. "For years, the West was basically not in China," says Devra G. Kleiman, the Zoo's former assistant director for research and senior research scientist, and a pioneer in panda research. Basic information about giant pandas is still emerging. (Even their perch on the mammalian family tree has shifted from the bear to the raccoon branch—and back to bear—in recent years.)

"In 1972, when Hsing-Hsing and Ling-Ling arrived, we knew practically nothing compared to what we now know," says Kleiman. Since then, research, especially in reproductive biology and behavior, has perked along at a handful of other zoos and breeding centers—like Mei Xiang's and Tian Tian's birthplace in Wolong Nature Reserve—that are home to about 140 captive giant pandas. Until her death in 1992 and his in 1999, Ling-Ling and Hsing-Hsing ranked among the most intensively studied individual animals ever.

"We don't yet know enough about what's normal," says Zoo director Spelman, "but captive pandas can help us better understand and help those in the wild."

Over the next ten years, at least a dozen new research studies involving Tian Tian and Mei Xiang will investigate everything from stress-hormone levels to circadian rhythms to the dynamics of scent marking. Twenty video cameras will monitor the pandas' every move. (Readers can watch the pandas on the Web at pandas.si.edu/.) Microphones will record every bleat and honk. Scientists will also probe their preferences. Do giant pandas prefer air-cooled or water-cooled grottoes? In Washington's wilting summers, Mei Xiang and Tian Tian will have one of each to choose from—just an example of the many features designed for research and enrichment in their yards, refurbished at a cost of $2.2 million.

Nevertheless, not everything can be planned for in advance. "4:00: T began pacing," read the keeper's log notes for one January day, "and M began climbing the mesh and hanging on the conduit." The agile Mei Xiang, it seems, had gotten herself into a tight spot by scaling the electrical wire conduit on the outside of the Panda House and wedging herself under the roof overhang. "Being a baby,

P. 49 JEFF TINSLEY, SI; ALL OTHERS: JESSIE COHEN/NATIONAL ZOOLOGICAL PARK, SI

she just thinks these things are great fun," explains keeper Dianne Murnane, "and then, too late, realizes that she isn't where she wants to be."

Mei is coaxed down. The next day, aluminum facing, too smooth to climb, is installed over the conduit.

This is only one in a string of antics. Within days of their arrival, Tian Tian and Mei Xiang can nimbly operate the water valves in their indoor enclosure. Fortunately, they lose interest before unleashing a flood. Another day, Tian Tian hoists himself onto a platform and tears down an acoustical ceiling tile. It doesn't take long for someone to suggest that any prison wanting to verify that it is escape-proof might hire Mei Xiang and Tian Tian.

"Their activity level wasn't anticipated," says Michelle Kayon, the Zoo's head of project management, who oversaw the enclosure's renovation. "Even though the Zoo has had pandas before, they were different ones, and older."

"They're not like Hsing," sighs keeper Brenda Morgan, a nine-year Panda House veteran, at the weekly panda management meeting. "I don't know how we'll keep up with these two." Her voice conveys the loving, weary tone you might expect from a mother of twin toddlers at the end of a long afternoon. "I'm amazed at how much they're awake during the day," she adds.

Kleiman says that giant pandas' exploratory urges rank high in the mammal world—and for good evolutionary reason. "It starts with being bears; so many are omnivores, and they have to do a lot of thinking and processing to find food in different ways." Then, at some time in the

That's Tian Tian (opposite) during quarantine at the China Research and Conservation Center for the Giant Panda. Below, the pair explore a show cage in Washington.

Researcher David Powell, above right, and a volunteer monitor video, audio and weather systems. At right, keeper Laurie Perry and Tian Tian eye each other.

past, for unknown reasons, they made a drastic, sudden switch to an herbaceous diet: bamboo. When they did, their manipulative abilities served them well for holding and breaking the tough stalks. To chew them, giant pandas over time developed enormous molars and muscular jaws—and those fat, rounded faces that we humans find so adorable.

Adapting to life in dense bamboo groves also had an important impact on the panda's social behavior. Pandas in the wild don't meet each other much. There, scent marking provides long-term communication about identity and reproductive status. Vocalizations, on the other hand, give immediate feedback; they tell a panda whether an unseen animal is friend or foe, approachable or not. "Their sound communication system is highly evolved," Kleiman says. "They can communicate a huge amount." Only within the past few years has fieldwork documented the complexity of the sounds. "And that is just the beginning."

Lessons learned the hard way bear her out. Kleiman cites the example of a cub born to Ling-Ling in 1987 that survived only four days. "The microphone was on, and the infant's vocalizations changed. Had we known what we learned a few years later in China—that these were distress calls—we'd have pulled the cub earlier" from its mother to give it medical help.

With an animal as endangered as the giant panda, every misstep along the way to successful captive breeding only heightens the sense of urgency. Even more significant than their ignorance about vocalizations, says Kleiman, were the misperceptions that led the Zoo to keep Ling-Ling and Hsing-Hsing apart from each other except during brief interludes for mating each year. The practice, from China, might have started because of aggressiveness among captives in the days when giant pandas were still taken from the wild. Furthermore, pandas were universally thought to be essentially solitary animals. Kleiman's own research in the 1990s convinced her otherwise.

"Keeping them apart was wrong," she says flatly. "They are more social than anyone could have believed." Among other things, she points out, if they were really solitary, you would not expect such complex vocalizing, which shows subtle attitudes and moods.

To a casual observer visiting the giant panda enclosure at the National Zoo, the interactions of Tian Tian and Mei Xiang look like the behavior of naturally sociable young animals. "They interact at least 50 percent of the time during the day," Brenda Morgan observes. "They play together, and they tend to eat and sleep near each other." The main exception, in the early weeks, has been at night, when the pandas are called by name to separate indoor enclosures. "At 5:00 P.M., they're ready and they don't mind. They know they'll have a meal."

But by the time the keeper opens up the house at 7:00 the next morning, the pandas are ready to play again. Well—Tian Tian, at any rate, is wide awake and poised for action, pacing briskly, bleating occasionally, munching bamboo. Mei Xiang apparently is not the morning type. When the keeper unlocks her enclosure, and lets him in, Tian Tian sometimes tries the gentle approach to get her up. One morning he finds Mei Xiang, asleep, and rests his upper body on hers until she awakens to play with him. But he might just as easily use a more straightforward method, as he does when he enters her enclosure at 7:15 on

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another day, and attempts to rouse Mei Xiang by walking on her. To no avail: she sleeps on.

His routine has come in handy for the keepers, who do not get inside the enclosures with the pandas. "Last Saturday," Morgan recounts, "he was out and she just wouldn't get up. So we let him in, and he knew what he had to do; he pushed and pushed and pushed until he got her up, and then she was on a roll."

The keepers believe Mei Xiang depends on Tian Tian for more than his alarm clock role. When they first arrived, in particular, she waited for him to go through doors first. Says Morgan, "She would sometimes seem to eager. Mei Xiang is more catlike. Sometimes she expresses interest in you, sometimes not. But they're both just very special, sweet young animals." Special enough that the Wolong staff was at first reluctant to let them go.

"They're like babies that you've raised from day one," explains Zhang Guiquan, assistant director of Wolong's China Research and Conservation Center for the Giant Panda, who accompanied Mei Xiang and Tian Tian to Washington. "We'd be upset to see any leave, and these two are especially adorable."

Still, how much personality variation can there really be among individual giant pandas? "Quite a lot," answers

"He's more like a dog,

upbeat, mellow, happy to see you, always eager. Mei Xiang is more catlike. Sometimes she expresses interest in you, sometimes not."

be saying to him, 'You go check it out.'"

Lest Mei Xiang be mistaken for the shrinking violet here, though, there is, as is usual in relationships, another side to this story. One minute they're tussling merrily in their yard; the next she's squealing in annoyance. Tian Tian has gotten the upper hand. "She likes all contact to be on her terms," explains researcher David Powell, who is studying the pair's behavior. Here the two are, another day, enjoying a treat of carrots. She gobbles hers up, sees that he still has one, and goes over to noisily demand—and get—it. "She'll take his food, and he'll put up with it," Powell says. "He's just happy to be here." So happy that certain stress-related repetitive behaviors that Tian Tian exhibited in Wolong have almost disappeared. Among them are paw-sucking and pirouetting—a combination of placing the front paws against a wall and spinning around.

Tian Tian, left, rolls up on Mei Xiang's back, something he does when they play or he is trying to get her to play.

"The wonderful part," he says, "is that Tian Tian and Mei Xiang get along together, they play well, and there's nothing aggressive."

"They're both very people-oriented," says Powell. "He's more like a dog, upbeat, mellow, happy to see you, always

Zhang, based on his observations at Wolong, which currently has more than 40. "Just as some people are very shy or introverted, some pandas are too. Some don't move around much even though they're healthy, and a few choose solitary play." Their mothers' personalities are predictive, he says. "These two are very active and lively and they love to play, and their mothers are very similar."

Personality could play a significant role in their prospects for parenthood. "It all has to do with how easily the animals get into a routine," says Powell. "If they can never adjust, and show all sorts of stress-related behaviors, it becomes more difficult. The way these two have been so far—laid back, not easily startled or frightened—could be a benefit later, for breeding and rearing cubs and general health." Mating stakes are high. Females are fertile only once, for a few days, each year, and captive males can be bumbling lovers, if they show amorous intent at all. Artificial insemination has contributed to many successful captive births.

Mei Xiang and Tian Tian aren't expected to reach sexual maturity for another three years. In the meantime, though, Zoo scientists and keepers are betting that life in a naturalistic setting will both enhance their well-being and

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The pair check out one of two new grottoes in the panda complex. In summer this one will be air cooled.

ease them into the requisite mood when the time approaches. Friends first, lovers later, researchers reason; but giant pandas also need privacy and time alone, and the new enclosure allows them that space with sectioned terrain. Unlike the grassy and rather bare yard where Hsing-Hsing and Ling-Ling passed their days, Mei Xiang and Tian Tian's well-appointed enclosure is landscaped with their native habitat in mind, from mist- and fog-bathed Sichuan species of firs and Chinese red cedars to sand wallows and the cooling grottoes.

Their diet is different too. When they arrived, Ling-Ling and Hsing-Hsing ate rice-based gruel revved up with protein, vitamins and minerals, presented in big metal pans. "That's how they did it in China, so that's how we did it," says National Zoo clinical nutritionist Mary Allen. "But it was messy, and bad for their teeth." Now, keepers distribute little piles of high-fiber leaf-eater biscuits—brimming with essential nutrients that replicate those found in different types of bamboo—in changing locations around the enclosure, making feeding a more complex experience for Mei Xiang and Tian Tian. They still get their bamboo: 88 pounds a day from a private grove in Maryland.

Mary Allen would like to see the National Zoo start its own bamboo plantation within the next year or so, cultivating four or five species. Researchers will examine how varying nutrient contents stack up against the pandas' own preferences. Beyond that, some speculate that a diet that's mostly bamboo, instead of other zoo foods, may improve their reproductive chances. "For now, our objective is just to keep them eating the kind they're getting," says Allen.

So far, so good—perhaps not surprising, considering some of the terms ("chowhound," "vacuum cleaner") that crop up to describe this pair, and Tian Tian in particular. "Food-motivated" is the behavioral term that explains their actions. If bamboo and biscuits are the pandas' daily meat and potatoes, Tian Tian and Mei Xiang are especially motivated by the carrots, boiled yams and, best of all, apples that also come their way from time to time.

Food figures prominently in another new feature of life in the panda enclosure—enrichment sessions, a fairly recent addition to American zoo husbandry in general. Intended to add complexity and diminish monotony in the animals' daily routine through the introduction of novel objects, enrichment sessions also offer some insight

into the particular temperament of individual animals.

How long does it take for Tian Tian to approach something unfamiliar? How long will Mei Xiang spend exploring it before wandering off? The two pandas are called indoors while the keepers deposit the novelties outdoors, then they're released into separate yards so they won't unduly influence each other's responses. On a gray winter afternoon, the first session kicks off with the appearance of cardboard boxes, filled with hay and studded with biscuits. Tian Tian finds his immediately and proceeds to demolish it, putting his whole body into the effort as he does so.

"Classic bulldozer method," laughs keeper Dianne Murnane. In less than 20 minutes, he's out of there. No such alacrity for Mei Xiang. She approaches her box tentatively and eventually starts neatly breaking off little pieces of cardboard. "A princess," Murnane says.

Another day's novelty, discarded Christmas trees, is a snore for both pandas. But pieces of apple and carrot in tubs of water are a hit. Tian Tian barges into his tub, upends it, gobbles all the treats off the ground, while Mei Xiang sits fishing hers out of her tub one by one.

"It's harder to do enrichment with Tian Tian because he's so food-motivated," says Powell. Mei Xiang's special fondness is for scent—allspice, anise, Wild Musk cologne . . . "She responds to everything. Once she rubbed almond extract all over herself and then went to sleep."

Their responses to novelty in general and different kinds of enrichment in particular offer soft-focus snapshots of two distinct personalities.

A little something to do: Mei Xiang works at getting biscuit treats that are hidden in a burlap bag filled with hay.

Already, their responses to novelty in general and different kinds of enrichment in particular offer soft-focus snapshots of two distinct personalities. As to enlarging the portrait, "it's too early for us to provide scientific documentation on the effects of enrichment on giant pandas," says Benjamin Beck, the National Zoo's associate director for animal programs, "but we will be pooling findings with colleagues at Zoo Atlanta and San Diego in the future," and results will be coming in from Wolong, as well.

A larger captive population and increased cooperation among institutions, combined with long duration studies in many areas, may sharpen the picture dramatically. Lucy Spelman takes the long view: "This is an extension of a 28-year commitment at the National Zoo. And it certainly won't stop with this 10-year block of time."

Reintroductions of captive pandas into the wild are one eventual possibility; self-sustaining captive populations, a kind of insurance policy against natural catastrophe, are a much more defined goal. Still, zoos can no longer be thought of simply as arks, Spelman says. "We're looking at research that begins in a captive setting and continues in a wild setting."

Ultimately, the survival of the giant panda as a species will depend on whether that setting stays wild. Spelman ticks off a few roadblocks in what is bound to be a long and painstaking journey. "We're trying to save a species that lives only on one thing, bamboo. There are a thousand of them in a land of 1.2 billion people." The National Zoo, she says, must simultaneously support research, education and conservation.

"It's a now or never situation for the wild giant panda," says Spelman, who will travel to China this spring to visit three of the panda reserves that will receive funding from the loan of Mei Xiang and Tian Tian. For now, though, the plight of the species seems terribly far in time and place from the National Zoo, where a young male panda is spending his afternoon performing countless somersaults and rolls on the slope of his enclosure, a black-and-white ball turning browner by the second.

Leslie Allen revived her rusty Chinese while reporting this story. Photographer Jessie Cohen made two trips to China to capture the move.

Seeing Science

SIX MILES

UP

City patterns, farm history, ancient seabeds, old mountains and new, the why of clouds: take a look

BY JAMES TREFIL

ON AN AIRPLANE FLIGHT, YOU CAN catch up on your reading, prepare for the meeting you're going to, or just stare idly out the window. There's another thing you can do that you may never have thought about, however: you can actually learn a lot of science. Let me take you on a generic flight from the East Coast to the West Coast to show you.

We leave from an airport near a big city. This means that when you look out your window, you will have a bird's-eye view of a modern metropolitan area. What you're looking at may not be much like the image of a city that you have in your mind. Many of us think of a city as a center, where people work, surrounded by bedroom suburbs, where many people live. In fact, a combination of automobiles and information technology has created a very different kind of city in America, and you can see that easily from your window. Notice that here and there, scattered around the built-up area, are small collections of high-rise office build-

The sinuous course of meanders on the Chickahominy River in the lush Virginia countryside is a stunning sight from an airplane.

ings, often associated with a large shopping mall. These are "edge cities," so named because they appear in the suburbs around older metropolitan areas. They can be quite large: one near Washington, D.C., for instance, has more office space than Miami. They make the modern city into something more like a network of centers, rather than a single center surrounded by residential areas. This development explains many things about modern life, including the fact that commuting out of a central city or from suburb to suburb can often be as difficult as the classic commute from suburb to city.

As your plane gains altitude, you start to see the grand design of the landscape beyond the city. Most likely you will see some rivers flowing eastward toward the Atlantic Ocean. Have you ever wondered why rivers so seldom flow straight on their course? Part of the reason, of course, has to do with local geography—water always has to flow downhill, so the presence of even a small rise will produce a change of direction in flow. In flat areas, however, the land slopes gently to the sea. In this case, you often see rivers winding back and forth for no apparent reason. These looping curves are called meanders, after the Maeander River (now called the Menderes) in western Turkey. These loops are created by the dynamics of the river itself.

Here's how it works. If there is even a small bend in the river, centrifugal force will tend to throw the water toward the outside of the curve. The water piles up against the outer bank as it goes around the curve and then flows back along the bottom. This means that the water actually travels around the curve in a twisting, corkscrew path. The effect of the corkscrew is to excavate material from the outer bank and deposit it near the inner one. In other words, once even the smallest curve appears in the river, the action of the water tends to open up the outer parts of the curve and close off the inner parts. The net effect is to push the curve farther out—to make it more pronounced. Eventually, a river on a flat plain can wander back and forth through a series of large loops (above).

If you are flying west from Washington, D.C., for example, the loops of the Shenandoah River on valley floors are striking. You may also see, as you fly over the farmlands of the Midwest, isolated arcs marked by trees and brush. These were once meanders of nearby streams and rivers, but are now oxbow lakes or dry beds.

By the time you reach cruising altitude, you will be close to the Appalachian Mountains. From the air, you can easily see one of the most dramatic features of these mountains: that they run, pretty much uniformly, in a single direction, from southwest to northeast.

About 350 million years ago, Africa collided with North America. As a result of the collision, the North American continent folded up like a tablecloth being pushed along

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the table. The parallel ridges you see from your window, then, are the result of a collision that took place long before any human beings walked our planet.

If you're lucky, you may see an interesting cloud formation during this part of your journey. It sometimes happens that a long line of puffy white clouds forms just over the tops of the mountain ridges, leaving the valleys in between clear. These clouds form when warm, moist air from the valleys is lifted up over the cooler mountaintops. If conditions are just right, the drop in temperature will be enough to cause the water vapor to condense out of the air to form the cloud. When the air descends into the warmer valley, however, the increase in temperature evaporates the water droplets, making the cloud disappear. The result is a cloud that seems to stand still at the crest of each ridge.

Actually, each bit of water moves through that ridgetop cloud as the air carrying it first cools (on rising) and then warms up again (when it descends). Although the cloud itself is stationary, water droplets are moving through it constantly. In a sense, the cloud is like an airport—it's always full of people, but each person is there for only a short time (hopefully). In the same way, each droplet of water enters the cloud on the way up, stays in it for a while, and then leaves it on the way down.

Wispy cirrus (top) and rain-filled cumulus are common sights; pilots will avoid the latter.

Most people regard the next part of the trip, from the Appalachians to the Rockies, as supremely boring. What better place to consider clouds, then, than a stretch where the terrain itself doesn't change very much?

There is always some moisture in the air, water molecules interspersed between the oxygen and nitrogen that make up our atmosphere. The higher the temperature, the faster the air molecules are moving and the more "elbowroom" there is to squeeze water molecules between them. At a given temperature, though, there is only so much elbowroom, and only so much water that the air can carry. The "relative humidity" that you hear in your daily weather reports is the ratio between how much water is actually in the air and how much it is capable of holding.

If, for some reason, the amount of water in the air is greater than the amount of elbowroom available for it, the water will be "squeezed out" in the form of tiny droplets of condensation. You can see this effect if you look closely at the jet of steam coming from the spout of a teapot. When the jet first comes out, it is very hot and all of the water in it is in the form of individual molecules; it is in the gaseous state. For the first inch or so of its track, the jet is clear. As it cools, however, the amount of elbowroom decreases and the water starts to condense out as liquid droplets, producing the cloud we all call steam.

The same thing happens when clouds form. On a warm summer afternoon, for example, air near the ground may be heated by the sun-warmed earth. The heating will cause the air to expand, and consequently it will start to move upward. As it rises, it finds itself in regions of lower pressure, so it expands further, which cools the air. Eventually, it reaches a temperature where the water it is carrying starts to condense out, and a cloud is formed. The puffy white cumulus clouds you see on a summer afternoon can be thought of as markers of places where rising air bubbles reach the limit of their ability to hold water. Notice that no matter how billowy the clouds are, the bottoms are always flat. The plane of the clouds' bottoms marks the altitude at which water starts to condense out of the air.

Although clouds may look pretty substantial, a small summer cumulus cloud like the ones we've been describing may contain no more than 25 to 30 gallons of water, about enough to fill an ordinary bathtub.

So as you fly along, look at the clouds and see if you can figure out what they are telling you about local air currents. Do you see "mashed potato" (cumulus) clouds with occasional columns punching through (SMITHSONIAN, April 1994)? This is the result of lots of rising air bubbles and some strong updrafts capable of carrying water droplets high into the atmosphere. Are you flying between two layers of clouds? You may be seeing the result of stable layers in the atmosphere stopping upward-moving air columns with all their moisture. Do you see clear spots in an otherwise unbroken layer of clouds? These may mark places

BARRIE REKEACH; ALEX S. MACLEAN

The surveying practice of subdividing western lands into quarter-mile sections created gridlike farmscapes such as this one in Ohio.

where air is descending, pushing the cloud into regions where the water droplets evaporate. You probably won't get close to the dark, threatening clouds associated with thunderstorms—airplanes tend to give them a wide berth—but they are still another phenomenon associated with water condensing out of the air. There are a virtually infinite number of ways the various cloud types can combine to fill the sky, and you can while away part of your journey by trying to figure out a few.

The terrain below, by the way, is not as boring as some would have it. As you move farther west, the farm fields become more and more regular, and the land beneath you begins to look more and more like a chessboard. You will also notice that each square farm contains a farmhouse (usually white) and outbuildings—what we recognize as the typical American family farm. This is quite different from what you see when flying over Europe, where centuries of acquisition and division have produced small, irregularly shaped fields, and where farmers typically live together in small villages and "commute" to work.

Actually, there is a formal reason for the chessboard pattern you see when flying over the Midwest. In 1785 Congress established a survey system that divided western lands into 36-square-mile grids. Further subdivisions, many in the 1860s under the Homestead Act, which granted one-quarter-square-mile sections (160 acres) to citizens for farming, helped create the pattern you see from your window.

This same impulse shaped American cities, whose streets are often laid out on an exact grid. The streets of my native Chicago are laid out like a piece of graph paper, and points in the city are located by saying how many blocks in each direction they are from the center. (My childhood home, for example, was 53 blocks west and 14 blocks south of the center.)

Near the Mississippi River, see if you can make out the color of the local rocks, either by looking at road cuts on highways or at cliffs along rivers, or by noting the color of the country roads. On a clear day, you should be able to see that they are white, rather than brown or black, as you might expect. The reason is that the rocks in this central part of the country are made up largely of limestone, a mineral that forms from the skeletons of plankton on the bottom of oceans. Hundreds of millions of years ago, a sea covered most of the territory you're flying over, and thick layers of limestone formed on its bottom.

From this point on, the land starts to rise slowly, becoming steadily more arid. If you look down, you will see the land turn dry, with trees stretched out along the paths of streams and rivers rather than appearing in free-standing clumps. During the growing season, you will also

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Whirling irrigation pipes sustain the cultivation of crops on circular farm plots in the sand dunes near Moses Lake, Washington.

start to see the effects of irrigation—bright green squares standing out against a brown landscape. You may even see irrigated fields laid out in perfect circles. This strange configuration arises because the fields are irrigated by a single long pipe on wheels. Water is pumped into the pipe at the center of the field and sprayed along its length. Over a period of days or weeks, the pipe is wheeled around so that all the plants in the circle get their quota of water.

We can play the "where is the boundary of the Midwest" game, trying to pick the spot where we've reached the West. (I usually pick someplace in the middle of South Dakota.) Historically, the boundary of the Midwest has been placed somewhere around the 100th meridian (Pierre, South Dakota, and Dodge City, Kansas). West of it, there is too little rain for row crops: corn, soybeans and the like.

From here on to the coastal mountain ranges, your primary impression of the land below you will be erosion and the lack of water. This is a part of the continent where water comes grudgingly from the sky in the form of rain and snow, with few rivers to bring the life-giving fluid to most of the land. The dun-colored, sparsely vegetated land beneath you speaks for itself.

The next major landmark will be the beginning of the mountains. If you're somewhere around Denver, this transition is very striking, with snowcapped peaks suddenly rearing up out of the plains. Geologically speaking, the Rocky Mountains are the most complex mountain chain on the continent.

While you're flying over the mountains, you may have a commanding view of some fascinating geological structures. If you see a mountain that looks as if someone had used an impossibly large ice-cream scoop to take out a chunk of rock near the top, for example, you are seeing what mountaineers call a cirque. This is a shape carved out by erosion and glaciers over the centuries.

As you pass over the snowcapped peaks of the Rockies, realize that the dramatic crags beneath you are characteristic of young mountains. Hundreds of millions of years ago the Appalachians looked just like this, and hundreds of millions of years from now the Rockies will be the kind of worn down, smooth terrain you passed a few hours ago. If you are traveling in the summer, you might wonder why the mountain peaks are capped with snow. After all, the amount of sunlight falling on the mountaintop is almost exactly the same as the amount hitting the plains below, yet down there crops are growing even as snow and ice wreathe the peaks.

The answer doesn't have to do with sunlight at all, but with the density of the air at altitude. If you've ever hiked in the mountains, you know that the air gets thin as you

GEORG GERSTER/PHOTO RESEARCHERS

Steam rises from the snow-covered crater of Mount Saint Helens, one of a string of volcanoes. Mount Rainier is in the background.

GARY BRAASCH/CORBIS

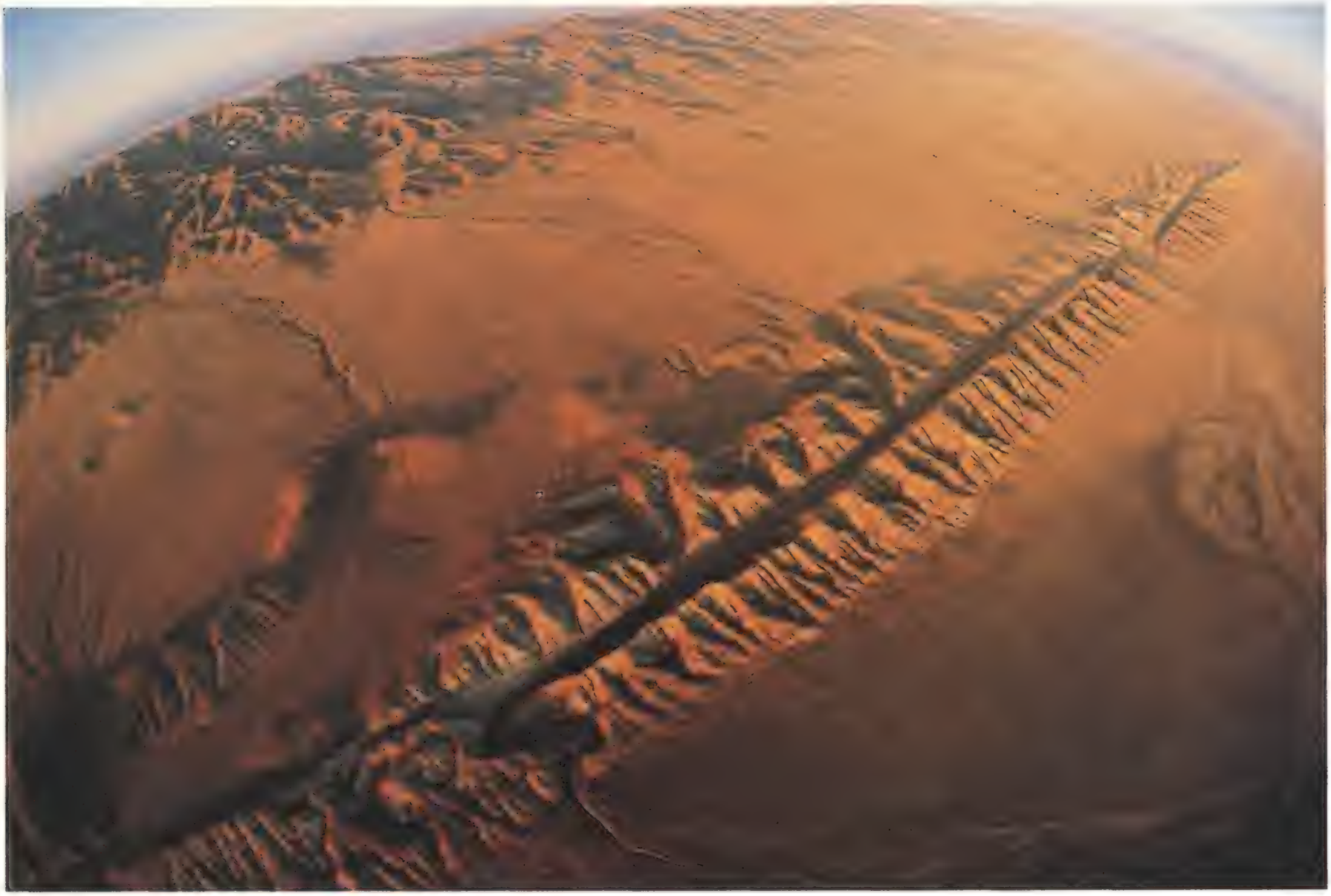
go up. Air acts like a blanket, trapping heat down in the valleys. The mountaintops, however, stick out above the densest part of the atmosphere. Like a sleeper's toes peeking out from under a blanket, they can be cold even when everything else is toasty warm.

Most of the long stretch between the front range of the Rockies and the Pacific Coast is made up of what geologists call "basin and range" country. Over a period of time extending back 60 million years and ending fairly recently, this region was lifted up and, as a consequence, the surface was stretched. Huge blocks of material slipped down along natural fault lines, creating the valleys you see beneath you, while the blocks that didn't slip eventually became the mountain ranges. Think of what you're seeing as a series of "stretch marks" on the planet, or as a row of teeth with every other one missing. Over time, the mountains weathered to their current shape, and the debris from that weathering filled up the valleys, creating the landscape you are flying over. The mountains here are actually a lot taller than they look. You can think of the ranges you see as the tips of the icebergs, with most of the mountain buried in debris. By the time you are over Nevada, you should be able to see that the surface is made up of the peaks of buried mountains.

There is one feature of the basin and range country you're flying over that is most easily seen from the air. That is the occasional basin covered with a flat bed of mineral salts or caked mud. These basins are yet another reminder of the changeable nature of the earth's climate. They are the bottom of long-vanished lakes that dotted this region in wetter, more hospitable eras. There was a time, remember, when large animals, such as mammoths and saber-toothed tigers, roamed these plains.

It's easy to see where weathering has been going on. Follow one of the long, narrow valleys that have been carved in the side of a mountain by the infrequent rainstorms or the annual runoff of melted snow. The valley may join up with others in a typical drainage pattern, but where it comes down into the plain, you may see a lot of debris spread out in what geologists call an alluvial fan. (The stuff is usually a different color than the surrounding surface.) This outwash may represent the work of centuries or even millennia, long periods of drought interspersed with short, violent periods when the running water carries material off the mountain. Here in the West, where the bones of the earth are visible, you can see clear evidence for the processes that shape our planet.

The Pacific Coast of the United States is more complex, geologically speaking, than the Atlantic. This is because in addition to being the border of the North American con-



From an airplane, the volatile earthquake zone known as the San Andreas fault looks like a scar on the desert.

tinent, it is also a place where different tectonic plates come together. Our continent rides, as you might expect, on the North American plate. The eastern edge of this plate is in the middle of the Atlantic Ocean, and doesn't coincide with the eastern edge of the continent. The western edge of the plate, however, runs along the Pacific Coast, and this produces some very interesting effects.

About 29 million years ago the western edge of the continent was pushed out over the Pacific plate. The result is that the geology of our western coast is now split into two regions. From Northern California to British Columbia, a smallish structure called the Juan de Fuca plate is being pushed under the North American plate. As material from this plate descends into the earth, it is melted and starts to bubble upward. The upwelling magma produces a chain of inland volcanoes that includes Mount Shasta, Mount Rainier and Mount Saint Helens. On a clear day you can see this chain of volcanoes stretching into the distance from your plane.

From Northern California south into Mexico, the North American plate connects with the Pacific plate via that famous and ominous structure, the San Andreas fault. The two plates are scraping by each other along this line. Sometimes, abutting parts of the plates will stick to each other because of the pressures involved. The rest of the plates continue to move, stretching the stuck parts. Eventually the parts will come unstuck, springing back into shape with a catastrophic snap. This is the kind of earthquake that leveled San Francisco in 1906.

If the light and your position are right, you can sometimes see the San Andreas fault from the air. Look for a long chain of lakes in the peninsula south of San Francisco or long lines in the desert near Los Angeles. For the most part, however, the San Andreas lurks unseen under the surface, unnoticed until the next earthquake.

As your plane starts its descent, you can look for many of the same things you saw after takeoff. The metropolitan areas of the western United States have edge cities, just as they do in the East. If anything, they are more pronounced in places like Los Angeles, built after the start of the automobile era, than in places like New York and Boston.

As you unbuckle your seat belt and collect your carry-on baggage, you might want to think for a moment about how much you can learn in the seat of an airplane, just looking out the window. Who knows, perhaps one day airlines will offer college credits.

James Trefil flies 50,000 to 100,000 miles a year, depending on where his wife is working. He is the Clarence Robinson Professor of Physics at George Mason University.

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Grandma Moses

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Country

BY STEPHEN MAY

ON A SPRING DAY IN 1938, A NEW YORK City civil engineer and art collector, passing through the upstate village of Hoosick Falls, New York, spied four small paintings in the window of a local drugstore. Inquiring inside, Louis J. Caldor found that the paintings, along with several others by the same artist, had been gathering dust, unsold, for about a year. He bought all of them for a few dollars and proceeded to visit the painter on a farm in the nearby hamlet of Eagle Bridge.

There he purchased another ten works from the surprised, 77-year-old farmer's widow, Anna Mary Robertson Moses, who had only recently taken up painting. Invited to stay for tea, Caldor amazed his hostess and her relatives when he assured them that he was going to make the artist famous.

The following year Caldor was able to get three Moses works included in a Museum of Modern Art show of self-taught artists, and to find a dealer, Otto Kallir, who would champion the elderly painter and launch a quarter-century career that would make her an internationally known celebrity.

The combination of the farmwife's homespun personality, her long life, her charming, naive evocations of rural life, and a rising national interest in folk art catapulted the lady who became known as Grandma Moses to acclaim and fame. A darling of the mass media, saluted by Presidents and collected by prestigious museums, she was welcomed into millions of American homes via magazine articles, radio, television and numerous reproductions of her work.

Painting with growing skill and plucky to the end, Moses had become an enduring American icon when she died in 1961, at the age of 101. After her death, there was some backlash from those who resented all the publicity she had received and from elitist art observers enamored of abstract expressionism and scornful of self-trained artists. The wide appeal of her life saga, however, and

Many of Moses' paintings depict routine farm activities or annual rituals. *Sugaring Off* (1955) emphasizes the value and rewards of productive work.

increasingly, of her art itself, has never worn off. Grandma Moses remains an American original, a lasting national cultural phenomenon.

Now, four decades after her death, an ambitious touring retrospective allows Moses' art to be appreciated apart from her persona—and it looks awfully good. "Grandma Moses in the 21st Century," curated by preeminent Moses authority Jane Kallir, granddaughter of the artist's dealer, and organized and circulated by Art Services International of Alexandria, Virginia, has opened at the National Museum of Women in the Arts, where it will be on view through June 10. The exhibition will travel to the San Diego Museum of Art (June 30-August 26) and will continue on to five additional venues before closing in December 2002. The national tour is sponsored by AARP and is accompanied by a handsome exhibition catalog.

There was little in the busy, humble first 75 years of Grandma Moses' life to suggest that she would become an artistic superstar. Born Anna Mary Robertson in 1860, she was one of ten children in a farm family living near the upstate New York village of Greenwich. "We came in bunches, like radishes," she said of her siblings.

Anna Mary grew up helping her mother with household chores and cavorting around the countryside with her brothers. Blessed with a keen memory, she could recall seeing area buildings trimmed in black bunting following President Abraham Lincoln's assassination.

When her father, an amateur artist, gave her paper, she would "draw the picture, then color it with grape juice or berries, anything that was red and pretty in my way of thinking." Anna Mary's brothers made fun of what they dubbed her "lamb scapes," and her practical mother "thought I could spend my time other ways." *Joy Ride* (opposite) revisits Moses' childhood, when, as she wrote in her autobiography, after a deep snowfall "father would hitch up the horses to the old big red sleigh and break out all of the roads, as we lived back in the fields, probably half a mile from the main road. . . . Oh, those happy days!"

The indomitable Grandma Moses, pictured here wielding her brush in the small room that served as her studio from 1951 on, had painted for years in her bedroom.

Anna Mary attended school off and on, usually three months in summer, less often in winter, as she lacked warm clothing. She especially enjoyed geography, where her mapmaking efforts drew praise from the teacher. At age 12 she left home to work as a "hired girl" on area farms, beginning what she called the "hard years." Replicating her mother's diligence and work ethic, she came to take great pride in her culinary and homemaking skills. Memories of those experiences with a variety of rural families inspired many of her paintings.

When she was 27, Anna Mary married a God-fearing "hired man," Thomas Salmon Moses, and seeking better opportunities, the couple became tenant farmers on land near Staunton, Virginia. The young bride bought a cow and started selling butter and, eventually, potato chips to local markets. "Always wanted to be independent," she reminisced. "I couldn't bear the thought of sitting down and Thomas handing out the money."

During nearly two decades in Virginia, she gave birth to ten children, five of whom were stillborn or died in infancy. "Some folks blamed Thomas 'cause the babies came so clos't together," she remarked, "but I always said, 'It takes two to turkey-trot.'" Remembering how debilitated she was after one child was stillborn, she quipped, "I was so weak. I couldn't of made a hummin' bird a pair of garters."

Persevering through family illnesses, frequent moves, hard work and other vicissitudes of rural life, Moses came to love the serene Shenandoah Valley. In later pictures she re-created the dramatic mountains, meandering streams, flower-filled meadows and myriad farm activities that made the area special to her.

Candle making was the domain of women, and the artist spent endless hours during her childhood threading candle molds and melting and pouring tallow. *Candle Dip Day in 1800* (p. 75) recalls that activity, which was usually done in winter because the wax hardened quickly. "We always butchered one beef a winter," Moses recounted, "and the fat from the beef is called tallow. . . . The minute it come around cool weather, we commence to make candles for the following year."

In 1905, at the urging of her homesick husband, Moses and her family headed back to New York State, settling on a farm in Eagle Bridge, not far from Moses' birthplace. Naming the place Mount Nebo, after the biblical mountain where Moses died, she raised her children and worked actively to support the farm.

Most of Moses' works depict a bygone world of stability and tradition, but in reality, she moved often during her life. In *Moving Day on the Farm* (p. 73), she looks back on how

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"Father would hitch up the horses to the old big red sleigh and break out all of the roads, as we lived back in the fields."

Joy Ride (above), from 1953, recalls Moses' childhood and the fun that would follow a deep snowfall. "We would all climb in the sleigh on a lot of straw and blankets," she wrote, "and away we would go." In the 1930s Moses began to embroider pictures with worsted yarn and learned about the use of color. *The Covered Bridge*, 1818 (left) was created before 1941. Later, the artist would apply paint in much the same way as she had yarn.

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family, friends and neighbors pitched in to help others relocate.

When her husband died in 1927, Moses' youngest son took over the family farm, and for the first time since childhood, the 67-year-old grandmother had some time on her hands. During her years as a farmwife and mother, she had frequently found ways to beautify her homes, such as using house paint to enhance chromolithographs and to decorate a large fireboard in her parlor. She had created her first real painting, *Autumn in the Berkshires*, a copy of a chromolithograph, on a scrap of old threshing-machine canvas. "I stole the canvas for my first picture from the thresher," Moses said, "and oh, but my husband was mad."

Encouraged by one of her daughters, Moses began to embroider pictures with bright worsted yarn. In her early 70s, when arthritis made it difficult for her to wield a needle, she took up her sister Celestia's suggestion that she try painting in oil.

At first she copied images from Currier & Ives reproductions, magazine clippings, greeting cards and calendar illustrations, to which she invariably added her own special touches. Hampered by a lack of proper brushes and paint, her early efforts were crude and awkward, yet somehow surprisingly engaging. At times she employed a straight pin to render very fine details.

Soon Moses was painting what she knew best: memories of everyday farm life, views of rural holiday and communal activities, and landscapes of the countryside around Eagle Bridge, which nestles in the hills to the west of the Green Mountains.

Moses tried to sell her pictures at charity bazaars, but with little success. "I . . . exhibited a few at the Cambridge Fair with some canned fruits and raspberry jam," she recalled in her autobiography. "I won a prize for my fruit and jam, but no pictures."

It was about this time that she began displaying her paintings at Thomas's Drugstore in Hoosick Falls, where they were discovered by Caldor. Although the enthusiastic Caldor told Moses "not to worry any more," he found that the Manhattan art dealers who agreed the work was interesting were unwilling to invest time and money in introducing an artist in her late 70s who could hardly be expected to produce many more paintings.

In 1939 Caldor did convince collector, and later dealer, Sidney Janis to include three of Moses' paintings in a folk-art show at the Museum of Modern Art; but the exhibition was for members only and drew scant attention. Finally, Caldor's quest took him to Otto Kallir, a refugee from Hitler's Austria who had recently opened a gallery on 57th Street. Kallir, who admired the purity and originality of self-taught artists, liked what Caldor showed him and asked to see more.

The ultra-intense, Hungarian-born Caldor, who spoke with a heavy accent and sported a handlebar mustache, told Kallir that he could inspect Moses' work where he stored it, in his car, which was parked in the Riverdale section of the Bronx. They would have to meet after 8 P.M., since Caldor worked all day. Kallir, who was active in anti-Nazi activities, feared this strange man might be a German agent, but decided to take a chance and go. "My grandfather was willing to risk his life for Grandma Moses," Jane Kallir jokes today.

"We drove out," Kallir later wrote, "and, the parking lot being unlit, Caldor showed me the pictures by the beam of a flashlight; they were piled up in the back seat of his car." Undaunted by "this rather strange way of presenting an artist" and impressed by what he saw, Kallir agreed to organize an exhibition of Moses' work. In October 1940 the 80-year-old grandmother made her debut in a one-woman show at Kallir's Galerie St. Etienne, entitled "What a Farm Wife

The Moses family moved often and relied on friends and neighbors to help with the packing. *Moving Day on the Farm* (1951) captures the upheaval of those moves.

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Painted." The display of 34 paintings, which were priced between $20 and $250, drew favorable reviews, but only three works were sold.

The publicity attracted the attention of Gimbel's Department Store, which soon rehung an expanded Moses exhibition as part of a Thanksgiving festival at the emporium. Moses, who had declined to attend the St. Etienne opening—why bother, she said, since she had already seen the paintings—was persuaded to give a talk at Gimbel's. The store trumpeted her appearance in hyperbolic advertisements. "Grandma's the biggest artistic rave since Currier & Ives hit the country," they proclaimed. "She's the white-haired girl of the U.S.A. who turned from her strawberry patch to painting the American scene at the wonderful age of 80. . . . Come hear what gave her the urge to buy paints and try her brushes on her threshing cloth. Gimbel's Eleventh Floor."

Fifty works were arrayed around the walls of the store's auditorium.

The Old Checkered House (1944) pays homage to a local landmark that had burned down in 1907. The historic inn's distinctive facade was one of Moses' favorite motifs.

Beneath them were featured samples of Moses' home-baked bread, rolls and cake, as well as her prizewinning preserves. Some 400 people gathered to hear remarks from the petite old lady wearing a lace-collared dress and a little black hat.

Uncertain about what was expected of her and perhaps remembering her Cambridge Fair experience, Moses concentrated her impromptu talk on her homemade preserves. Asked which painting she liked best, she replied, "Well, I guess it would be the sugarin'-off scenes. I know them so well." In response to a question about all the commotion she had caused, she said, "If people want to make a fuss over me, I just let 'em." The normally blasé New York press corps was won over on the spot. As curator Kallir has put it, "At that moment, the legend of Grandma Moses—in which art and personality became tightly intertwined—was born."

Moses, who made no secret of her dislike for New York City, returned to Eagle Bridge grumbling about the intrusive publicity and her categorization as an unschooled primitive artist. But she was consistently encouraged by Caldor and Kallir, who provided improved art supplies and urged her to continue painting what she liked.

Moses approached her art with the same practical, no-nonsense manner in which she had lived her life, viewing it as a way to make ends meet and please others. "If I didn't start painting, I would have raised chickens," she observed. "I would never sit back in a rocking chair, waiting for someone to help me."

That winter Kallir sent his Moses show on to the Whyte Gallery in Washington, D.C., where it received good reviews. But astute collector and museum founder Duncan Phillips was the only one to buy a painting.

As a result of the publicity, however, the artist was soon inundated with requests for paintings. The demand for her work led to increased output and larger pictures, as the farmer's widow turned a hobby into a full-time occupation. As she painted more frequently, she refined her technique and style in remarkable ways. Within a few years of her debut, she stopped copying Currier & Ives and evolved a style that featured close-ups of groups of people and animals set amid panoramic landscapes.

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An epiphany had occurred one day when she had seen a mirrorlike image of the surrounding countryside reflected in the chrome hubcap of a car parked in her farmhouse driveway. The reflection caught in its convex surface came close to what she wanted to convey in her art. From then on, her increasingly sophisticated compositions were characterized by broad vistas punctuated by quiltlike patterns of farms and fields.

By the time of her first show in 1940, Moses had created more than 40 worsted pictures and close to 100 small paintings. Thereafter, since she spent little time on preliminary drawings and worked quickly, she turned out about 1,600 works over the course of her two-decade career. It was an enormous output for any artist, much less one in her 80s and 90s.

Knowing what she was good at and wanting to paint scenes and situations from her own experiences, she rejected requests to depict unfamiliar subjects. She refused, for example, to paint a biblical scene, saying, "I'll not paint something that we know nothing about, might just as well paint something that will happen 2 thousand years hence."

Although entirely self-taught, Moses had definite ideas about how she wanted her work presented. She felt it should be framed, observing that a "picture without a frame is like a woman without a dress." In her mature style, Moses placed flat narrative vignettes in often sweeping, naturalistic landscape settings. Lacking training in how to depict figures and structures, she continued to use magazine and greeting-card images as models. Juxtaposing cutouts to fit her compositional scheme, she outlined basic shapes in pencil, usually on the pressed-wood panels that she favored.

Moses painted mainly from memory. As she once said, she liked "to paint old timey things, historical landmarks of long ago, bridges, mills and hostelries, those old time homes, there are a few left, and they are going fast. I do them all from memory, most . . . are day dreams, as it were." *The Old Checkered House* (left), for instance, immortalized a historic inn outside Eagle Bridge with a vivid red-and-white facade. A recurring motif in Moses' work, it had burned down in 1907.

The process of creating maple syrup and candy from sap tapped from maple trees was an activity she often depicted. *Sugaring Off*, from 1955, features a lively winter scene filled with boiling cauldrons, men toting buckets, horses at work, and a little "sugar house" set against an expansive, snowy vista.

Moses' landscapes, based on years of observing her region in changing seasons and weather, were detailed and close to natural in appearance, with instinctive color harmonies. The way in which she interwove layers of pigment with multiple brush strokes seems to have derived from her embroidery background. The resulting nostalgic images of country life reflected nature's changing moods.

Anyone who has visited that area of upstate New York will recall the prevailing sense of tranquillity conveyed by its mosaic of fields dotted with farmsteads and pastures, picture-postcard villages, winding rivers, covered bridges, forested hills and valleys, and the distant outline of the Green

As a child, Moses often helped with candle making. "It was tiresome . . . " she wrote, "but it was a necessary job." *Candle Dip Day in 1800* portrays her memory of that ritual.

Moses' paintings reflect the impact of weather and changing seasons on the rural landscape. *The Lake* (1957) is a vivid rendering of the brilliance of autumn.

Mountains. These scenic attributes of what Moses called her "homeland" were captured in her pictures.

Otto Kallir and others mounted traveling exhibitions that took Grandma Moses' work all over the country as well as overseas. She won prizes here and there, and her paintings were acquired by such distinguished individuals as President Dwight D. Eisenhower, who was a great admirer of her work. An amateur painter, Eisenhower once sent her a reproduction of one of his paintings with the handwritten inscription, "For 'Grandma' Moses, a real artist—From a rank amateur—with best wishes."

Emerging in a postwar America preoccupied with the threat of nuclear war and the tensions of the Cold War, Moses' art conveyed the nation's traditional optimism and hope, along with its steady rural values—and the message that it was never too late to undertake great things in life. She became an inspiration to many, especially the elderly, and her humble history and images of bygone days made Americans feel good about their country and their heritage. The saga of a productive, feisty, self-trained painter still going strong in her 80s and 90s captured the American imagination to an unparalleled extent.

A spunky, outspoken woman whose speech was peppered with old sayings, she could be quite acerbic about those around her. Describing a stingy neighbor in Eagle Bridge, she said, "He's as close as the next second. . . . " Of a relative whom she disliked, whose short, white hair used to stand up in the wind, Moses commented that she looked "like a dandelion gone to seed." The artist's 1952 autobiography charmingly recounted the ups and downs of her life and conveyed her folksy wisdom to a wide audience.

A special hit with the electronic media, Moses appeared often on radio and television programs. A 1950 documentary of her life, narrated by Archibald MacLeish, was nominated for an Academy Award, and Lillian Gish portrayed Moses in a 1952 televised dramatization of the artist's life.

Edward R. Murrow's celebrated 1955 "See It Now" television interview with Moses in her Eagle Bridge home is regarded as a highlight of his long career. Taking place over several days during a summer heat wave, it began with the 94-year-old artist sitting cool and collected for hours under hot floodlights, demonstrating her technique by painting a sugaring-off scene.

Soon after Murrow began his questioning, Moses turned the tables by asking him to draw something on a piece of paper she placed before him. When Murrow insisted that he couldn't draw, Moses said it was easy, anybody could do it. It was clear that

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In 1955, Tobias Schneebaum disappeared in the Peruvian Amazon.
One year later he walked out of the jungle...naked.
It took him 45 years to go back.

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the crusty television veteran had more than met his match.

The artist's work was widely circulated through Christmas and greeting cards, posters, china, drapery fabrics and other licensed properties. She reached "a larger public than any living artist before her," says Jane Kallir.

Moses rarely left Eagle Bridge, but when she did, it made big news. In 1949 she was invited to Washington to receive a Women's National Press Club Award to be presented by President Harry S. Truman. Five others were honored, including Eleanor Roosevelt. Moses' genuine, spritely manner took center stage at the gala dinner, attended by 700 guests representing Washington's power elite.

Charmed by the conversation at dinner, Truman attended a tea his wife gave for the recipients the next day. Chatting with the President, Moses found that he was "a country boy like my own boys," adding impishly, "I think he likes cows." At Grandma's insistence and much to her delight, Truman agreed to play a minuet by Paderewski on the piano.

"I'm changing my style," Moses said in a 1956 interview, "getting modern in my old age." In *Rainbow* (1961), her last painting, she uses color to express emotion.

Despite her earlier reluctance to deal with the press, Moses became adept at handling them. "Why those reporters were all right," she remarked in reference to her first news conference. "You know how chickens come runnin' around when you go to the door to feed 'em? That's what those reporters made me think of."

With each advancing year, interest in the artist's birthday increased, culminating in enormous press coverage of her 100th birthday, replete with a flood of letters and gifts, an appearance on the cover of *Life* magazine, and a proclamation by Governor Nelson Rockefeller declaring September 7, 1960, "Grandma Moses Day" in New York State.

Painting in a more fluid, expressive style toward the end, Moses completed her last painting, *Rainbow* (above), in her 101st year. A complex scene of purposeful and peaceful living, this culminating work was characteristic of her life—and her art. *Rainbow*, writes Jane Kallir, "is a direct outpouring of the artist's spirit as well as a technical *tour de force* of color and texture."

Moses' health failed after her centennial and she spent her last months in a Hoosick Falls nursing home, dying there in 1961. "She just wore out," her physician said. President John F. Kennedy led an outpouring of national and international tributes to the beloved artist.

In her autobiography, published when she was in her 90s, Grandma Moses wrote: "I look back on my life like a good day's work, it was done and I feel satisfied with it. I was happy and contented, I knew nothing better and made the best out of what life offered. And life is what we make it, always has been, always will be."

Stephen May is an independent writer and lecturer based in Washington, D.C.

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Winston Churchill IN AMERICA

ON WINSTON CHURCHILL'S FIRST VISIT TO THE UNITED States during World War II, less than three weeks after Pearl Harbor, he was staying at the White House as a guest of the Roosevelts. The pressure of work was intense, and he would dictate memorandums, letters and speeches at every available moment, even in his bath. On one such occasion he was wallowing in the large tub, disappearing under the water like a porpoise every now and then, and as he surfaced, resuming the flow of his dictation. Eventually he emerged from the tub, his valet, Sawyers, draped a vast towel around him, and, clad like a Roman emperor, he strode up and down his bedroom continuing to dictate to a secretary. At length the towel fell off him, but Churchill, almost unconscious of it, preoccupied by the subject, continued to walk up and down, dictating relentlessly. Suddenly the door of the bedroom flew open and the President, propelling himself in his wheelchair, came into the room. Churchill was unfazed.

"You see, Mr. President," he said, "I have nothing to conceal from you."

The incident is characteristic, and it illustrates the remarkable appeal that enabled a man who was half-American himself to captivate Americans, and make them, even half a century later, some of his greatest admirers. A few days later he was able to tell a joint session of Congress that "I cannot help reflecting that if my father had been American and my mother British, instead of the other way round, I might have got here on my own." Few members of Congress would have disagreed with that assessment.

Churchill, more than any other person, turned what had been, in truth, a tenuous and often uneasy association between the United States and Great Britain—for all the (not always helpful) historical ties—into a special relationship.

HIS TRAVELS AND TIES NURTURED THE SPECIAL RELATIONSHIP BETWEEN THE UNITED STATES AND BRITAIN

Before World War II, isolationism and ethnic partisanship often intruded on any intimacy between the two countries. In the late 1920s the mayor of Chicago attempted to appeal to the anti-British sentiments of his constituency by promising to poke King George on the snoot in the unlikely event that he should set snoot in Chicago. Such sentiments were rooted in old animosities dating back to the American Revolution, the War of 1812 and the Civil War, during which Britain had unofficially sided with the South.

Churchill's understanding of the United States, however, was to a large extent the product of his visits to the United States. They were important in his life. He got to know the country and many of its statesmen. He made and lost large sums of money. He nearly lost his life in an automobile accident. He helped to formulate the strategy that won World War II. And he, more than anyone, helped to raise awareness of the Soviet danger at the outset of the Cold War. It is an extraordinary record. As former Secretary of State Dean Acheson later wrote, in words reminiscent of Churchill's own about the Battle of Britain, "Mr. Churchill has been one of the few—the very few—who have significantly and beneficently affected the course of events. . . . How seldom can this be said of anyone!"

His first decision to visit the United States (and then to go on to report Spain's war with insurgents in Cuba) was taken impetuously in 1895, when, just short of 21, he wrote to his mother to announce his intention and at the same time to ask for the money to make the trip.

With his usual insouciance, he wrote to Lord Wolseley, the Commander in Chief of Britain's army, and to a friend of his father's, the British Ambassador to Spain, and got permission to visit the Cuban war zone and an introduc-

BY JOHN H. CHETTLE

Winston S. Churchill and his wife, Clementine, disembark in New York from the Cunard liner *Queen Elizabeth*, January 14, 1946.

tion to the commander of the Spanish forces in Cuba. On reaching New York, he stayed with Bourke Cockran, who had run for the Democratic Presidential nomination against Grover Cleveland in 1892. Cockran was to make a great impression on Churchill, who subsequently claimed that he had patterned his speaking style on him. Nearly half a century later Churchill was able to recite to Adlai Stevenson long excerpts from Cockran's speeches.

On this first visit, Churchill's letters were infused with his enthusiasm for the United States:

"This is a very great country my dear Jack," he wrote to his younger brother from New York City. "Not pretty or romantic but great and utilitarian. There seems to be no such thing as reverence or tradition. Everything is eminently practical and things are judged from a matter of fact standpoint. Take for instance the Court house. No robes or wigs or uniformed ushers. Nothing but a lot of men in black coats and tweed suits. Judge prisoner jury counsel & warders all indiscriminately mixed."

He was less impressed with the American press—"[t]he essence of American journalism is vulgarity divested of truth"—but that was a sign of the strength of the society, "[a] great, crude, strong, young people" who move about their affairs "with a good hearted freshness which may well be the envy of older nations of the earth." It was a view from which he never departed, and we see in it the germ of his description of Lend-Lease during the war, the agreement by which Britain received material aid from the United States, as "the most unselfish and unsordid financial act of any country in all history."

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Back in office, Prime Minister Churchill joined President Harry S. Truman for talks on the yacht *Williamsburg* in 1952.

By the time he next visited the United States at the end of 1900, he was already famous, the author of five books, dealing with, respectively, his adventures with the Malakand Field Force on the Indian frontier, the war in the Sudan, the Boer War, and then a novel, *Savrola*, that he forever after sedulously advised his friends to avoid reading. More important, he was a member of Parliament and a hero celebrated for his gallantry under fire and his daring escape from a Boer prisoner-of-war camp.

He had just completed a successful lecture tour in England where he had earned nearly $20,000—the equivalent of almost $400,000 today—but he had a considerably less profitable tour of Canada and the United States. This was the result in part of pro-Boer sentiment—the war between Britain and the Boer Republics in South Africa was still raging, and U.S. opinion favored the underdog—and in part bad management by the tour promoter. He did, however, meet President McKinley, have dinner with Teddy Roosevelt, then Governor of New York and recently elected Vice President, and have Mark Twain to chair his first lecture. In introducing him Twain noted that "Mr. Churchill by his father is an Englishman, by his mother he is an American, no doubt a blend that makes the perfect man."

During this stay in the United States, the "perfect man" showed a fleeting interest in collecting rare first editions, and took advantage of this indulgent judgment to persuade the often irascible Twain to sign all 25 copies of the limited edition of the *Writings of Mark Twain*. In the first volume Twain wrote, "To be good is noble; to teach others how to be good is nobler, & no trouble."

There was a long hiatus between this visit and Churchill's next in 1929. For much of this period Churchill held top Cabinet rank, in the last few years as Chancellor of the Exchequer, the British equivalent of Secretary of the Treasury. He dealt often with matters connected to the United States, kept up contact with American friends and maintained a lively interest in American affairs. In 1928 he suggested a slogan for Democratic Presidential candidate Al Smith, "AL for All, and All for AL." In a letter to his wife, his assessment of American politics has a distinctly contemporary ring: "These American Presidential Elections are extraordinary games in which with the greatest zest and party bitterness the whole nation takes part, although there is no real difference between the parties except that of 'ins and outs.'"

If Churchill's normal passage through life was on a grand scale, on this trip he outdid himself. Charles M. Schwab, the chairman of Bethlehem Steel, put his private railcar at Churchill's disposal during his tour, and "brushed aside with pained looks" Churchill's offer to pay the haulage.

This was, of course, very agreeable. Churchill, who had been born in Blenheim Palace (SMITHSONIAN, February 2001), and was descended from the great Duke of Marlborough (as well as, on his mother's side, from a proprietor of the *New York Times*), was not addicted to petty economies. Indeed, he was not addicted to economy at all. He liked large houses, good food, big cigars, valets, silk underwear, champagne, and all the other finer appurtenances of life.

In an era of Prohibition, he went armed with a big flask

Churchill and friend and confidant President Franklin D. Roosevelt met in Cairo, Egypt, in 1943 to continue discussions of war aims.

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of scotch and a little one of brandy, with reserves in two medicine bottles, in case of emergency. He saw the West Coast for the first time, he met almost everyone, and everyone wanted to meet him, including Charlie Chaplin ("a marvellous comedian—bolshy in politics—delightful in conversation") and William Randolph Hearst ("two magnificent establishments, two charming wives"—a reference to the presence of Hearst's mistress, Marion Davies). He traveled to Washington, D.C. and marveled at the evidence of the Civil War that still remained on the battlefields of the region. ("If you could read men's hearts, you would find that they, too, bear the marks.")

He returned to New York on October 24, Thursday, the day that ushered in the great crash of 1929. A dinner for him, attended by 40 of the leading bankers and financiers, was addressed by one of their number as "Friends and former millionaires." Churchill himself lost a significant amount of money, including funds that he had received from his recent writings—a serious matter for Churchill, who no longer held office in the British government and depended on his writing to earn his living.

His subsequent visit in 1931 was intended to recover some of these losses. He was to give 40 lectures with a total minimum fee of roughly $37,000 and to get a further $29,500 from a series of articles for the *Daily Mail*, together the equivalent of nearly $700,000 today.

Instead, he very nearly lost his life. Late for an appointment, and irritated by the traffic lights—apparently, he had never traveled a road with traffic lights before—he climbed out of his taxi, looked the wrong way, and was hit by a car traveling at 30-35 miles an hour. He sustained scalp injuries, two cracked ribs and heavy bruising. His scientific adviser, Professor Frederick A. Lindemann, congratulated him on having developed a suitable cushion to diminish the impact. Without the benefit, such as it is, of the advice of tort lawyers and insurance companies, Churchill freely admitted liability, and was taken to the hospital, where he remained more than a week.

Though still in pain, he began his lecture tour, which became a "triumphal progress," met President Hoover, visited the House of Representatives, where debate was suspended to enable members to meet him, and left for England in March 1932, where he was greeted on arrival by a group of friends who had bought him a Daimler automobile to celebrate his recovery.

It was nine years before his next visit, just after Pearl Harbor. During much of that period, it had seemed that his own career was over; he no longer held office, or ever seemed likely to do so again. Only the coming of World War II, against whose dangers he had so long warned, brought him to supreme power.

Churchill recalled his mother in a moving address to a joint session of Congress on December 26, 1941.

From the beginning Churchill understood that Germany could not be beaten unless the United States joined the war, and yet nothing seemed less likely. While opinion polls showed that the majority of Americans wanted to give assistance to Britain, there was virtual unanimity against entering the war. A legend had arisen in the United States that the British had inveigled America into entering World War I. For a self-confident people, Americans at that time had a strange addiction to the belief that they were likely to be suckered by smooth-talking foreigners. The character of Uncle Sap was the personification of that sense of unease.

Churchill understood that better than any of his contemporaries. So began one of the most significant courtships in diplomatic history. It was assisted by the fact that Churchill was an early admirer of Franklin D. Roosevelt. When, within 100 days of the beginning of his administration, Roosevelt, against the advice of most of his economic advisers, had abandoned the gold standard, Churchill had congratulated him on the "noble and heroic sanity" of his decision. Churchill was no less aware, however, of the limitations on Roosevelt's freedom of action.

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On a 1949 visit to the United States, Churchill flashes his famous V for Victory sign to members of the staff at the British Embassy.

"No one perhaps in England can realize as vividly as every Englishman in Washington did," wrote one close observer, "the almost miraculous felicity of everything [Churchill] said during the period when America's attitude was still uncertain—but obviously destined to be decisive."

Sir Isaiah Berlin, the British philosopher, who served in the British Embassy in Washington during the war, has written of the "unique personal bond" between the two men, based on more than community of interest or admiration, but on their "delight in the oddities and humors of life and their own active part in it."

This is not the place to consider that courtship. The isolationists, who used to worry that Churchill was running rings around Roosevelt, have been succeeded by British revisionist historians who believe that Roosevelt cleverly exploited Churchill's eagerness for an alliance. These historians argue that all Churchill's concessions did not bring the United States into the war, only Pearl Harbor did, and that Churchill was not responsible for focusing U.S. attention on beating Germany first—Hitler did that for him by gratuitously declaring war on the United States.

There is obviously something in this argument, but it is still remarkable that, at a time after Pearl Harbor, when Japan was conquering much of Southeast Asia, the European theater was recognized by Roosevelt as the decisive one. This owes much to what Churchill generously called the "magnificent . . . breadth of view" of the American high command, but it was also a reflection of the qualities that Churchill himself was now able to deploy before that leadership. Preeminent among those virtues, what Isaiah Berlin has called "the single, central, organising principle of his moral and intellectual universe," was a "historical imagination so strong, so comprehensive, as to encase the whole of the present and the whole of the future in a framework of a rich and multicolored past." He had the capacity to find "fixed moral and intellectual bearings, to give shape and character, colour and direction and coherence, to the stream of events."

He was a man, in the memorable words of his wife, "tingling with life to the tips of [his] fingers," more experienced than any living statesman in the strategic control of war at the highest level, and imbued with an almost mystical sense that his life—as the son of both Britain and the United States—had been a preparation for this moment.

During his 1941 visit to Washington, every evening, as he recounted in his own war memoirs, he would wheel Roosevelt from the drawing room to the elevator as a mark of respect, thinking at the time of Sir Walter Raleigh spreading his cloak before Queen Elizabeth. Many of Roosevelt's advisers were concerned that the blandishments of Sir Walter, secluded with Roosevelt in the White House night and day, were altogether too successful. Dean Acheson, summoned to the White House by Harry Hopkins, who was concerned about this precise issue, recorded his impressions:

"As we discussed the matter, the bedroom door opened and in walked the author of the memorandum in pajamas and bathrobe, smoking a cigar. . . . Even in pajamas the aura of command hung about him. The bathrobe could no more disguise his eminence than the toga could Caesar's."

It is hard to think of any visit to the United States by any statesman that was more influential than this one. If it has a competitor, it is in Churchill's visit in 1946 to give the commencement address at Westminster College in Fulton, Missouri.

He was now out of power, and had time to accept an honorary degree from the University of Miami. The style that made him so effective is very clear from his speech notes, composed in their characteristic prose-poetic style:

"I am surprised that in my later life
I should have become so experienced
In taking degrees.
When, as a schoolboy,
I was so bad at passing examinations.

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In fact one might almost say
that no one ever passed so few examinations
and received so many degrees."

He had arrived in Washington on March 3, 1946, just nine days after George F. Kennan, then chargé d'affaires at the U.S. Embassy in Moscow, sent his famous Long Telegram that was to have so important an influence on U.S. attitudes to the Soviet Union. The mood among those close to President Truman was thus receptive to the message Churchill was about to deliver. Churchill showed the draft of the speech to Adm. William D. Leahy and Secretary of State James Byrnes, both of whom strongly approved.

It is an indication of the vigor and gusto of Churchill, then 71, that on the overnight railroad trip to Jefferson City, Missouri, he stayed up until 2:30 A.M. playing poker with Truman, though, according to Clark Clifford, who was part of the game, not very well. Truman, well aware of Churchill's delight in card games, had thought that the reputation of American poker was at stake, and had commanded his companions to uphold American prestige. It soon became evident that Churchill was liable to be skinned, and during an interval in the game, Truman charged his companions not to treat Churchill too badly, which led to at least one of them folding what he knew to be a winning hand.

During the return trip Churchill, talking about the accident of birth, said that, if he were born again, he would wish to be born in the United States. "Your country is the future of the world . . . Great Britain has passed its zenith . . . I believe your leaders must confront this responsibility head on, and it is my hope that you will assume the leadership of the free world." This, he added, "despite the fact that you Americans have some barbaric customs."

"Like what, Mr. Churchill?" he was asked.

"For one thing," Churchill replied, "you stop drinking with your meals."

In his speech, with Truman sitting on the platform with him, Churchill noted that the United States now stood "at the pinnacle of world power," a "solemn moment" for the American democracy. Then, making it clear he spoke only for himself, and while expressing his "strong admiration" for the "valiant Russian people and for my wartime comrade, Marshal Stalin," he made the now-famous reference to what had happened to the map of Europe after the war.

"From Stettin in the Baltic to Trieste in the Adriatic, an iron curtain has descended across the Continent."

"I do not believe that Soviet Russia desires war," he continued. "What they desire is the fruits of war and the indefinite expansion of their power and doctrines. But what we have to consider here today, while time remains, is the permanent prevention of war and the establishment of conditions of freedom and democracy as rapidly as possible in all countries."

It may seem strange, in the light of the later history of the Cold War, that the reaction to the speech was "almost universally hostile." Truman himself, who had read the speech beforehand and pronounced it "admirable," felt himself obliged to deny that he had known in advance what Churchill was going to say.

"From Stettin in the Baltic to Trieste in the Adriatic, an iron curtain has descended across the Continent."

There were to be further visits, including visits made as Prime Minister once again, but never any as important as these. There are, it is true, other historical revisionists who argue that the United States was always going to win the Cold War so that this speech was no big deal; and there are others who argue that the United States was always going to follow its own national interests so it didn't need Churchill to deliver a warning.

But these arguments make sense only in hindsight. The reaction to the speech is itself an indication of just how necessary it was. It was uttered at a time when the nation had just emerged from four years of war and was not looking for further opportunities for conflict. The Soviet Union was still seen in a heroic light. There was scant recognition, in the press or in the public at large, of the threat it posed, or of the possibility of communist governments taking power in Italy or France. Perhaps only Churchill, of all the Western leaders, had the stature, the credibility and the inclination to give such a warning.

Nobody can assess what might have happened if he had not done so. But what Isaiah Berlin has called the foundation of Churchill's political outlook, his "belief in and predilection for the American democracy," found its expression in a speech that made a historic contribution to preserving the American system of government.

Washington, D.C. attorney John H. Chettle wrote last about reporter Richard Harding Davis (SMITHSONIAN, April 2000).

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PHOTOGRAPHS

THE PHOTOGRAPHS ON THESE PAGES involve a certain amount of intention to deceive, something this magazine normally does not do. The fearsome monster at left is actually a garter snake, the same small, harmless creature the little girl is playing with at right. Enlargement works wonders. The photograph that fills the following pages depicts a matter of some delicacy. That jumble is composed entirely of males waiting for a female to emerge from a den. They are used to crowding: members of this species form the largest concentration of snakes in the world and one of the largest concentrations of vertebrates anywhere. "A single den," says Oregon State snake biologist Robert Mason, "is about the size of an average American's living room and may hold up to 25,000 snakes."

Various species of garter snake are a familiar sight in many parts of North America. But the red-sided garter snake, native to central Manitoba, would appear to be in a class by itself. At the very northern limit of where reptiles can live, it hibernates for a full eight months. Because it has to find dens more than six feet down to escape the killing frost, suitable sites are hard to come by. In spring, 10,000 or more males may be found at the entrance to one den.

Those thousands of males are waiting for females. According to photographer Nic Bishop: "Each is immediately swarmed over by the sexually fervid males, which engulf her in a 'mating ball'

ent rise

BY NIC BISHOP

of as many as 100 individuals. Even if she is smothered to death (the snakes can pile up to two feet high), she is no less eagerly courted, because the male's mating instinct is elicited by a sex pheromone, an odor signal that animals use to communicate with each other, contained in the female's skin. Only after all the females have left the dens, which takes about a month, do the males disperse to their summer feeding grounds."

Red-sided garter snakes are remarkable for other qualities as well. They may travel as far as 20 miles from their dens, following pheromone trails. They can follow a trail left by just one snake, and the latest research indicates they can tell which way that snake was traveling. Despite being well studied, however, they retain some of their mystery. We don't know whether or how the snakes distinguish pheromones that lead to their particular den. It may even be that they navigate by the sun. No one knows where the babies born in the summer spend their first winter. They start using dens only in the second winter. No one knows if and how any genetic mixing between dens takes place, and what role the babies may play in it.

Not everyone would wish to come upon the scene on the next pages. Those swarming snakes are no more a threat than a single one in a garden in Ohio, however. And they do remind us of nature's seemingly boundless improvisation of behavior. —*John P. Wiley, Jr.*

A snake considers the world outside its den, in Manitoba. The males come out first, then the females, who are promptly buried by slithering legions of eager suitors.

Amorous males will pursue a female up a tree and struggle for her there. It is pheromones in her skin that urge them on, even if she should happen to die.

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PHOTOGRAPHS BY RICHARD ROBINSON

Sister Frances Carr, who has cooked meals for her fellow Shakers at Sabbathday Lake, Maine, for more than 50 years, prepares an apple pudding.

In the meetinghouse, we sit on plain benches. Walls are white, woodwork blue, the colors of light and sky.

WE MUST, ACCORDING TO TRADITION, USE SEPARATE DOORS: WOMEN ENTER on the right, men on the left. We must take no notes. Also, no laptop computer. No tape recorder. Brother Arnold Hadd explains: this is Sunday morning meeting—no worldly work. But are we welcome? "Yea," says Brother Arnold, employing his antiquated form of address. He is in his 40s, slight, intense, dark-bearded. "All are welcome."

We watch the four brothers—black trousers, white shirts, black vests—file inside. A few visiting men follow them in, the "world's people." Four sisters go through the scrupulously matching door on the right, wearing dark gowns, bodices modestly wrapped in hooded cloaks. Visiting women follow them into the white-clapboard meetinghouse, unchanged since 1794, except that now SUVs and tractor-trailers roar by on Maine Route 26.

We count 18 buildings here at Sabbathday Lake. But at its zenith, in the 1800s, this community of the United Society of Believers in Christ's Second Appearing—the Shakers—stretched a mile along this road. Once, a score of Shaker communities, prosperous and neat, the envy of their neighbors, dotted the farmlands from Maine down through New Hampshire, Massachusetts, Connecticut and New York, westward to Ohio, Indiana and Kentucky, and south as far as White Oak, Georgia, and Narcoosee, Florida. Now many are torn down or taken over by the world's people for schools or jails or Shaker museums. Only here at Sabbathday Lake, in New Gloucester, Maine, do the world's last eight Shakers keep the old ways.

But we—who came here knowing nothing about Shakers except that they made stunning furniture—are surprised at what we are learning about those old ways. In their heyday, we have discovered, Shakers were business go-getters and technologists. They invented prolifically, and they were aficionados of all that was new and useful, from snapshot cameras to linoleum. Celibates, communists, they lived apart from ordinary society. Yet, in other ways, they were quintessentially American.

Inside the meetinghouse, we sit on plain Shaker benches, men facing women. There is no altar. No minister. No statues. No stained-glass windows. There is a single bowl of perfect sunflowers. Walls are white, woodwork blue, the colors of light and sky, signifying heaven. It is the original blue paint, made from sage blossoms, indigo and blueberry skins, mixed in milk. Sister Frances Carr reads commandingly from the Bible selection for the day, Matthew 5:16: "Let your light so shine before men, that they may see your good works."

Graceful in their severity, the wood-frame buildings clustered here at Sabbathday Lake exemplify the spare and elegant architecture of 19th-century rural New England.

She herself is a Shaker good work, for she was raised a "Shaker girl." But she was not born a Shaker. Nobody was.

Shaker founder Ann Lee, a blacksmith's daughter born in 1736, in Manchester, England, an illiterate velvet cutter, said her followers must be celibate. Historians speculate it was because her parents—alarmed when she joined the "Shaking Quakers," an ecstatic fringe sect—arranged her 1762 marriage to a blacksmith. Each of Ann's four children died in infancy. Historian Edward Deming Andrews noted in his 1953 account, *The People Called Shakers*, that she saw those deaths as a judgment upon her for "concupiscence." Andrews quotes her saying she began to avoid her bed "as if it had been made of embers." She

Gathered in the dining room of Sabbathday Lake's dwelling house, the Shakers and the day's visitors share a noonday meal. Traditionally, the brethren and male guests eat at one table, the sisters and female guests at another.

shunned sleep, eating and drinking only what was "mean and poor," that her soul "might hunger for nothing but God."

Celibate, the Shakers were childless. But they took in orphans. "In the 19th century, when there was no Aid to Families with Dependent Children or Social Security, it was impossible for most single parents to raise a family, and—if no relatives were available—they often would look to the Shakers," Sister Frances Carr had told us. She herself came to the Shakers 63 years ago, when she was 10 years old, along with her younger sister, preceded by several older siblings. Sabbathday Lake took in orphans until the 1960s, when the Shakers finally were too few to care for children.

"I was defiant," Sister Frances told us. "I did not want to be here, and I did not care for the sister in charge of us. I was also a bit of a ringleader, to make things exciting, so all through my teens nobody expected I'd ever become a Shaker." Shakers, she explained, raised their Shaker boys and Shaker girls with little pressure to join the sect. When the children reached adulthood, they decided whether to go out into the world, and most did. As Shaker children, they had learned at least one trade. Upon leaving, they received clothes, perhaps tools, a little money. They were always welcome to return. "I thought God had called me to this work," Sister Frances told us.

Today's meeting—Bible readings, thoughts from each Shaker—focuses on fostering world peace by creating peace within yourself, pacifism being a core Shaker doctrine. We "amen" each reading and testimony with an appropriate hymn. "There are about 10,000 Shaker songs in existence, and this community's present repertoire is 400 to 500 songs," Sister Frances had told us, noting that the Sabbathday Lake Shakers have recorded two CDs, *Simple Gifts* (1994) and *The Golden Harvest* (2000), with the Boston Camerata.

Originally, at meetings like this, Shakers danced, "shook." Elders withdrew the "gift" of dance around 1900, when few brothers remained. But the Shakers' early wild dancing unnerved nonbelievers. So did their predilection for disrupting mainstream church services with shouts of "Hypocrisy!" Persecuted, jailed, scorned, in 1774 Mother Ann Lee, as she was known, and seven followers sailed to New York City. They did menial work. Eventually, from a Dutch

Inside the meetinghouse at Sabbathday Lake, Brother Arnold reads an Old Testament lesson at the Sunday service, the only religious observance open to the public. The meetinghouse, erected in 1794, is the oldest surviving Shaker structure.

patroon, they leased a swath of woods and swamp near Albany, in Niskeyuna, also called Watervliet, to start building heaven on earth.

Ann Lee and her followers crisscrossed Massachusetts and Connecticut, reaping converts, but also making enemies. One offense was rejecting the Trinity. God, they said, is a duality: male and female. Thus, men and women must be equal. Shakers, like Jesus, must be celibate. Also, Jesus owned nothing. And so Shakers must sign over their property to the community, to be owned in common. Shakers were communists.

During the Revolutionary War, rumors circulated that the immigrants from Manchester were British spies. After assaults and imprisonment, Ann Lee died on September 8, 1784. Her death brought Shakerdom alive. Her successor, one of her British followers, built a meetinghouse at New Lebanon. This settlement, later called Mount Lebanon, on New York's border with Massachusetts, became the headquarters, or "Central Ministry."

At Sabbathday Lake we are invited to the Shakers' Monday noon meal, in the community's six-story brick dwelling house. It is a bit like a dormitory, a lot like an old farmhouse. At 11:50 A.M. the building's Great Bell summons the Shakers from their work in the barns and offices. We assemble in separate men's and women's waiting rooms to idly talk for ten minutes.

"Mother Ann quoted Jesus about rendering unto Caesar what is Caesar's, so Shaker communities have always paid taxes, although as religious places, they could have avoided them," Brother Arnold notes. "I can't say we've ever done it joyfully, but we've always done it—recently our tax doubled; when Sister Frances opened the bill, I could hear her from the other end of the house."

At noon a buzzer summons us into the dining room. One table for women, one for men. Most of the food we are served came from here: ham, cauliflower, tomatoes, cucumbers, bread, a fruit compote of cantaloupe, honeydew melon and raspberries. Meals, like work, are worship. But rules have relaxed. Conversation murmurs.

Brother Arnold oversees the vegetable garden. "We don't grow potatoes anymore because there is no way to beat the Colorado potato beetles," he says. "We farm organically—it would be simpler and easier to just go out and buy food, but our own is the freshest and best."

When Arnold was 16, in Massachusetts, raised a Methodist, he wrote to this

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At the Hancock village in Pittsfield, Massachusetts, the Round Stone Barn stands as a soaring monument to the Shaker aesthetic. Rebuilt in the 1870s after the original burned in 1864, the structure contains a stunningly handsome fretwork of support beams and interior rafters.

community with a historical question. "I was so impressed with the response that I started corresponding," he says. In high school, he was unsure what he wanted to become—an anthropologist? Archaeologist? Chef? He decided, at the age of 21, to become a Shaker.

Sister Frances wrote *Shaker Your Plate: Of Shaker Cooks and Cooking*, and she rules the kitchen. Brother Wayne Smith, who is tall and strapping and looks vaguely like a young Garrison Keillor, tends the community's 50 sheep. "We raise the sheep for their wool, to supply our shop with yarn," he says. "They're working lawn ornaments." He also tends two steers, Malachi and Amos. "We'll eat them sooner or later," he predicts.

He grew up in South Portland, Maine, nominally a Baptist. "I went to church at gunpoint, usually," he says. But a Shaker brother was teaching Latin at his school, earning extra income for Sabbathday Lake. "I actually opened my Latin book and studied," Brother Wayne says. He began visiting Sabbathday Lake at age 14, discovering a "gift" for working with animals. He, too, decided to join, at the age of 17.

Besides farming, the community supports itself as Shakers always have: with this and that. For instance, the Shakers turned unused buildings into a museum. Now 6,000 visitors each year tour this isolated Maine community located north of Portland and south of Lewiston and Auburn.

"I'm the printer, and we earn a little selling our publications, and also our jams and jellies and pickles and yarns," Brother Arnold says. They market herbs as well. But many Shaker industries have dwindled away. "Our great mill used to turn out shingles and cider on the first level, and the second level was a

Now 6,000 visitors each year tour this isolated Maine community north of Portland and south of Lewiston and Auburn.

machine shop, and the attic had a carding mill; we had a sawmill and cooper's shop, in addition," Brother Arnold says. And Sister Frances adds: "It was built in 1853 and operated until 1941, when all the hired people went off to war. Now its granite foundations make for a magnificent ruin!" But the community maintains a tree farm and gravel pits, and it leases out its lakeshore lands. The Shakers lease out their orchards, too, but they still keep some apples, Cortlands and McIntoshes, to sell.

"We're not a wealthy community, by any means, but there are many causes we contribute to—for a long time we've been particularly concerned with hunger in the world," Sister Frances tells us. Brother Arnold lectures across the United States and overseas. "It's just to tell people what we believe and how we live, and that we're alive."

We are asked back for supper, the day's lightest meal. Dispensing with old ways, the genders sup together. Afterward, as it grows dark, we sit talking on a porch with the brothers and sisters and an ebullient Baptist minister from Mississippi, an old friend of the Shakers. Watching the moon rise, we find ourselves recounting our first encounter with Shakerism, a few weeks ago, during a visit to the Shaker village in Canterbury, New Hampshire, now a museum.

We had been invited to stay in Canterbury's brick trustees' building. Such roadside structures served as offices where a few designated Shaker trustees met the world's people to buy and sell and arrange shipment of Shaker products. Our room featured the built-in cabinets and drawers that Shakers favored, for efficiency. Through our windows we could see the village, atop a hillside meadow. Meetinghouse, dwelling house, shops, sheds—they seemed to embody the Shakers' best-known song, "Simple Gifts." But they also expressed another Shaker trait, an all-consuming work ethic which might be called "anthillism."

In the early 1800s Joseph Meacham, who had assumed leadership, regimented Shaker communities down to meals. They must be finished quickly, the food consumed in silence. Canterbury's president, historian Scott Swank, told us such rules expressed a perfectionist impulse. "Renovating our 1793 dwelling house, we've found that even details hidden in walls, where nobody could see them, were of superior construction," he said. "For instance, ceilings hid beams, but the Shakers still planed beams smooth."

Buildings were color-coded. "Meetinghouses were white, dwelling houses were French yellow, work buildings a darker yellow, agricultural buildings were unpainted or red, and they painted their roofs red, so there were a lot of yellow buildings with red roofs," Swank told us. "They also color-coded interiors—Prussian blue in meetinghouses, red for working areas, yellow for shops and dwelling houses." Canterbury painted its sisters' workshop brilliant orange yellow, with vermilion trim, maybe to offset the New England winter's gloom.

"This was a work-oriented community," Swank told us. "They expressed themselves in activity, worshipping by dancing and singing, rather than sitting down and listening to a sermon, for instance, and they were somewhat anti-intellectual in their early years, and they were highly regulated," he said. Shakers had a deeply humane side, too, accepting into their communities former slaves, Jews, Catholics—everyone, they believed, is equal.

At the Canterbury, New Hampshire, settlement, the red-painted building, center, served as a firehouse. At right, the former creamery now houses its namesake restaurant, which is open seasonally and serves traditional Shaker cuisine.

Shaker dance took on new meaning: "Sister Aida taught us to fox-trot and waltz and do the two-step."

The washing machine (top), sold to hotels during the 1850s, was one of the few inventions patented by the Shakers. The knitting machine produced Shaker-designed sweaters for commercial distribution.

Nor did a Shaker bonnet and cloak transform you into an emotionless worker ant. In Canterbury's newly restored dwelling house, we met Alberta MacMillan Kirkpatrick, tall, white-haired, smiling, seated on a Shaker rocker in the room where she was raised, back for a visit. "Sister Betsy lived in the next room, when I was 11; she had a bad kidney problem and didn't walk well," she told us. "So I'd tap on her door to see if she'd like me to visit and she'd tell me stories." On her 7th birthday, Kirkpatrick, from Boston, saw her mother buried. Her father gave her to a succession of six unpleasant foster families, the final one abusive. In 1929 he telephoned Canterbury, asking the Shakers to take his daughter. They said they were not taking anymore children.

"One sister, Marguerite, was going to receive nothing for Christmas because each sister was supposed to list three possible gifts she'd like, and Marguerite, who was about 40, had written—1. a little girl, 2. a little girl, and 3. a little girl," Kirkpatrick told us. She became Sister Marguerite's Christmas present.

"We drove up on December 19 in my father's old Buick, with no heater, and it was snowy and icy," she remembers. Sister Marguerite erupted out of a door in the village and ran down the walk, her Shaker cloak flying in the wind. Marguerite dropped to her knees in front of the child. "She hugged me, saying, 'Oh, Bertie, I thought you'd never arrive!'"

Kirkpatrick told us: "Every morning I'd get up and look out these windows and I couldn't wait to start the day, because I was so free." She attended a school taught by Sister Marguerite. There was plenty of time for play. Helped by the sisters, the ten Shaker girls put on plays. "And we celebrated every holiday, putting up a maypole and dancing around it, July Fourth, Memorial Day," Kirkpatrick told us. "On Halloween we took over the laundry, and one year Sister Marguerite got an old gray cape and made a face on it, and held it up on a mop stick so she looked 12 feet tall."

Shaker dancing took on a new meaning: "Sister Aida taught us to fox-trot and waltz and do the two-step." Kirkpatrick drew headshakes for stilt-walking and vaulting down the stairs. But, as disciplinarians, Shakers were softies. "They were so lenient—I climbed into the bell tower, which we weren't supposed to do, and the only discipline was, 'Bertie, please don't do that again,'" Kirkpatrick said. After she graduated at age 16, Kirkpatrick began real work in the community, rising at 5:00 every morning to help bake apple and mince pies, along with eggs, bacon and home fries for breakfast. She shoveled snow and swept floors. She left at age 18, but returned every year for Marguerite's birthday.

Later, behind the trustees' building, we talked with archaeologist David Starbuck, who has been excavating at Canterbury since 1978, when he was a professor at Boston University. Today, as he probed the remains of a blacksmith's shop, he told us what his excavations have revealed.

"People want Shakers to be a certain way, but they had strict periods and relaxed periods," he told us. "We've dug up stuff you wouldn't expect, like tobacco pipes, beer and whiskey bottles, perfume bottles, hair restorers, and combs—they seemed really concerned about their appearance." Shakers have proved much like the rest of us.

It's important, too, to remember the altruism that underlay the Shaker sense of community. Canterbury's curator, Sheryl Hack, had told us that during the 1800s, when social services were meager at best, it was not solely religious fervor that brought converts. A sick farmer, unable to plow or milk, might face

disaster, but as a Shaker he had a community to back him up. Women then had scant options for work, and might be forced to marry for financial security—becoming a Shaker could be attractive. But after the Civil War, as society's options increased, ever fewer men joined. Sisters had to hire outside help. Eventually, women, too, their options broadening, stopped converting. By 1960, only Canterbury and Sabbathday Lake remained viable.

During the 1960s, the Shakers feared that an influx of counterculture people, drawn to communal living—but not religion—would distort Shakerism or even usurp the community's resources. So, at Canterbury, where the last brother had died, they decided to pull the plug, thereby ending their tradition. But Sabbathday Lake defiantly kept taking in converts, like Arnold Hadd and Wayne Smith. Un-Shakerlike bitterness flared between the two communities.

Above all, Starbuck explains, Shakers were quintessentially American: efficiency addicts and prolific inventors, with a business knack. To learn more, we visited Hancock Shaker Village, in Pittsfield, Massachusetts. In 1948 the Central Ministry moved from Mount Lebanon to Hancock. In 1960 it moved to Canterbury. Hancock became a museum, teaching the world about Shakers.

We particularly wanted to see Hancock's huge, gray-stone barn, which is round. "In 1826 the Shakers here had one of New England's largest dairy herds, about 200 head, when most of their neighbors had a herd of, maybe, 3," Cloud Kennedy, a Hancock historical interpreter, told us as we gazed at the barn, which looks like a stone UFO mother ship. Improbably woolly merino sheep wandered by. "The Shakers were among the first to import them, around 1831," Kennedy said. She noted that Hancock, in its heyday, had 60 buildings and 4,000 acres, while nearby Mount Lebanon had 6,000 acres. "The size of that, and this much weirdness and this much prosperity, terrified the people around them, so there was harassment and there was arson," she said.

This round barn replaced an older barn that burned. By way of ramps, cows or horses walked directly into either of the barn's lower two levels. Walking inside ourselves, we almost gasped. Stanchions circle a vast open core. Far overhead, at the building's apex, a cupola acts as a vent. Rafters radiate from the cupola to support the round roof. Sunbeams illuminate an intricate array of vertical masts supporting the floors, the rafters, the roof. "They built their houses like barns and their barns like cathedrals," Cloud Kennedy said.

But this cathedral was practical. Kennedy described the brothers bringing in their herd for the morning milking. Each cow, unsupervised, walks around the outer circle to its own stanchion and pokes its head through, attracted by the core's 400 tons of hay, tossed down from above. "Because the barn is round, the cows' heads are closer together than their rears, making more room for milking," Kennedy told us. "Meanwhile, the brothers can chuck the manure down to a manure pit, for spreading onto the fields." She added: "The brothers can milk all the cows and be done before breakfast."

Shakers embraced technology because it saved time, which was God's. Also, it saved their own energy, for worship. Brooms of the 1700s were merely bundled twigs tied to a stick. Shakers invented the more efficient flat broom we use today. They invented washing machines with powered agitators, and adjustable water temperatures and soap concentrations, selling them to hotels nationwide. They were the first to package and sell seeds. They also came up with a rotary harrow, wrinkle-resistant fabric, a pea sheller, a revolving oven, a machine for coring and quartering apples. Shakers embraced innovations from the world too. They were among the earliest photography bugs. Usually, they were their localities' earliest to get in electricity and buy automobiles.

Machines and architecture were not the sole Shaker "gifts." Hancock

Simple and beautiful artifacts of Shaker craftsmanship include, from top: nested oval storage boxes; colorful seed containers; sturdy rockers in graduated sizes; foot molds for drying socks.

"I would like to be remembered," wrote a Shaker sister, "as one who had pledged myself to the service of God."

exhibits a major collection of Shaker "gift drawings," which came to brothers and sisters in trances or moments of inspiration. Probably the most famous is *The Tree of Life*. It is a stunning green-leafed tree, displaying intensely green and orange fruits. Shakers also had a "gift" for chairs and tables. We next visited the Shaker Museum and Library, in Old Chatham, New York, a leading collection of Shaker artifacts. Curator Starlyn D'Angelo showed us examples of the elegantly simple Shaker chairs that inspired Danish modern furniture. By the 1870s, Mount Lebanon's chair factory was selling these chairs nationwide through an illustrated mail-order catalog.

Furniture made by Shaker hands sells for many thousands of dollars today. But craftsman Christian Becksvoort, in *The Shaker Legacy*, quotes Sister Mildred Barker, who died at Sabbathday Lake in 1990, at age 92: "I would like to be remembered as one who had pledged myself to the service of God and had fulfilled that pledge as perfectly as I can—not as a piece of furniture."

We ended our travels at America's first Shaker settlement, in Watervliet, New York, where Mother Ann died. Hank Williams, a former New York State commissioner of environmental conservation, now director of the Shaker Heritage Society, drove us to the Shakers' small, fenced-in graveyard. It is only a short walk from Albany's airport, and jetliners roar overhead. Here 445 Shakers lie as regimented as in life, headstones arranged in phalanxes. "Can you pick out Mother Ann's grave?" Williams asked. It is in the center of the sixth row, thigh-high rather than just knee-high, like the other stones. It is inscribed: "Mother Ann Lee Born in Manchester, England. Feb. 29, 1736. Died in Watervliet N.Y. Sept. 8, 1784." Williams pointed to the top of her tombstone, lined with pennies and quarters. "We don't know who leaves coins," he said. "It's an amazing thing."

Richard and Joyce Wolkomir wrote recently for SMITHSONIAN *on snowshoes. Photographer Richard Robinson is working on a visual survey of religious communities in America.*

ELIZABETH WOLF

Ever marvel at the craftsmanship of a Shaker chair?

IF SO, YOU might consider a visit to one of the few remaining Shaker villages. But be forewarned: the villages are not set up with plush tourist accommodations. That wouldn't be in keeping with the Shaker way.

THE REWARDS of a visit, however, are rich: it's impossible not to appreciate the pure poetry of swallow-tail lap joints on an oval storage box or how 200-year-old drawers built into a wall still slide open without sticking. To walk among the simple but beautiful Shaker buildings is to peer into the soul of America's longest running experiment in communism. As writers Joyce and Richard Wolkomir point out, the Shakers brought a profound spiritual dimension to every detail of their lives. Many years before architect Louis Sullivan immortalized the phrase "form follows function," the Shakers created a new style of craftsmanship that remains both breathtaking and remarkably modern.

IN NEW ENGLAND, five Shaker communities remain open today, including Sabbathday Lake in Maine, where the eight remaining Shakers live. For more information, call (207) 926-4597 or click on www.shaker.lib.me.us. Canterbury opens for daily guided tours May through October. For more information, call (800) 982-9511 or click on www.shakers.org. All villages feature a multitude of festivals and demonstrations.

"TRIFLES MAKE perfection, but perfection itself is no trifle," one Shaker wrote. Indeed.

Visit **www.smithsonianmag.com/journeys** for more stories, travel tips and information about the Shakers. There, you can also:

- discover the secrets of Eldress Prudence's ambrosia cake
- read an essay about Shaker design by a Smithsonian curator at the Renwick Gallery
- enjoy a delightful tale about a young girl who finds her bearings among the Shakers
- hear a selection of Shaker hymns
- click through an image gallery of Shaker furniture and crafts at the Hancock village.

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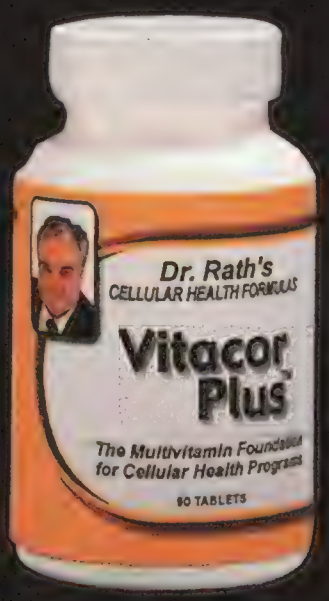

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Ann Robinson and Gene Barry examine Martian technology in the 1953 movie version of Wells' *War of the Worlds*.

THE WORLD ACCORDING TO WELLS

BEST-KNOWN FOR SCI-FI CLASSICS LIKE *THE TIME MACHINE* AND *THE WAR OF THE WORLDS*, H. G. WELLS BECAME ONE OF THE MOST PROLIFIC, AND CONTROVERSIAL, WRITERS OF HIS DAY

H. G. WELLS DID NOT INVENT THE FUTURE, BUT HE tried. He foresaw, decades in advance, the invention of the atomic bomb and its use to obliterate cities during a world war. He dreamed up the armored vehicle we call the tank. In 1895 he dabbled with the notion that time is inextricably linked to space—that it is a fourth dimension. Ten years later Einstein said pretty much the same thing, albeit in a more complete and scientific form, in his special theory of relativity.

Wells said that there would come a day when cars would entirely replace horse-drawn carriages. Trucks would carry freight on paved roads from one city to another. Corporations would move their headquarters to the suburbs, and their factories overseas.

He warned that someday biologists might use advanced technologies to engineer new life-forms. (He did not foresee that investors would bid up the stocks of biotech firms.)

BY JOEL ACHENBACH

He imagined that all the world's knowledge would be available in a single location, what he called the World Brain. (We've got something like that now, and we call it the Internet.)

Wells foresaw a sexual revolution. Women would be liberated, more marriages would end in divorce and people would embrace the idea of free love. Scandalously, he put his theories into practice.

And, finally—not incidentally—he pretty much invented the genre of modern science fiction.

Although we know Wells best as the author of such novels as *The Time Machine* and *The War of the Worlds*, few people realize the breadth of his literary output or the extent of his influence. When not writing his classic "scientific romances," he cranked out nonfiction tomes on human destiny and thick, Dickensian novels about ordinary people trapped by the class structure of England.

He befriended, and feuded with, the leading intellectuals of his day. In the 1930s he had private meetings with both Roosevelt and Stalin. During World War II, in his final years, he wrote the first draft of what would become the Universal Declaration of Human Rights. He was, according to the *Dictionary of Literary Biography*, "the most serious of the popular writers and the most popular of the serious writers of his time."

I began thinking about H. G. Wells while working on a book of my own about our fascination with extraterrestrial life. (Wells, as one scholar told me, "was the first person to create a really *alien* alien.") I was struck, reading *The War of the Worlds*, by its intellectual ambition, its muscular discussion of English culture, of the construction and destruction of the social order. The author wasn't just writing about marauding Martians with deadly heat rays; he was writing about human civilization.

H. G. Wells wrote more than 100 books in a career that spanned five decades. He is shown here at the beginning of his career, circa 1895.

It seemed quite appropriate that I mark this "turn of the century" by learning more about the great sage of the last. I read his books, retraced his steps and tried to see his world beneath the modern varnish.

If only he'd show up! He could pop out of a time machine, look around, and deliver his own profound assessment of what we'd done to the planet. My guess is that even H. G. Wells—in his day the most future-obsessed man on Earth—would be shocked by what he beheld.

Herbert George Wells was born in a time when people never went very far in life—literally. They died where they were born, or within a league or two. The widow on the throne had been there for decades and would be there for decades more. The empire was an immutable fact. The universe was static. Wells, according to society's master plan, would grow up to be a shopkeeper or a servant.

He was born in 1866 in a shabby, bug-infested home in the High Street in the village of Bromley, in what is now a suburb of London. It wasn't the absolute bottom of the social ladder, but it was close.

The front room of the house was a store, run by his father, Joseph, that sold crockery and cricket bats on the odd occasion that a customer would appear. His mother, Sarah, had worked

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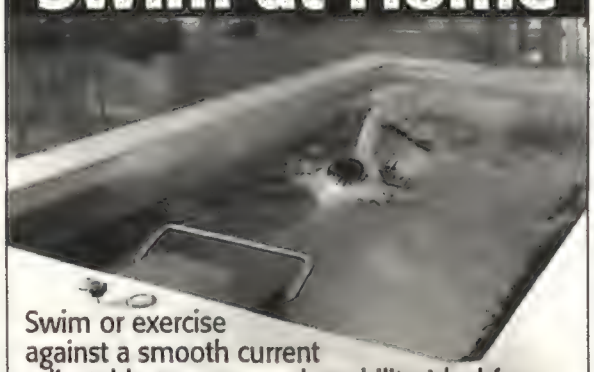

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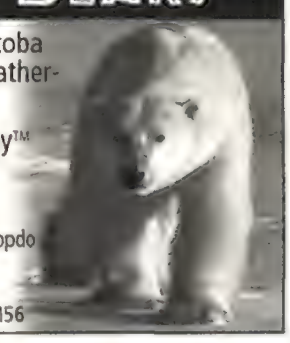

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As a student, Wells posed for this parody of a famous image of his professor T. H. Huxley ("Darwin's bulldog"). Evolutionary theory would forever influence Wells' work.

as a servant at Uppark, one of the great country mansions. Now, in Bromley, she was little more than a slave in her own home. "Every night and morning and sometimes during the day she prayed to Our Father and Our Saviour for a little money, for a little leisure, for a little kindness, to make Joe better and less negligent," Wells wrote in his autobiography. "It was like writing to an absconding debtor for all the answer she got."

His mother scraped together enough money to put him in a small private academy, giving him a better education than most of the children in his social class. But when the family's financial misfortunes forced Sarah Wells to return to Uppark as a housekeeper, she arranged to have "Bertie," then 14, leave school as well, and become apprenticed to a draper. Only after threatening suicide did the lad escape the apprenticeship and take a

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job as a student teacher at a grammar school. An elder teacher noted that Wells was gifted. A scholarship came: Wells would attend the prestigious Normal School of Science, in South Kensington, London.

Imagine the dazzling change of fortune: the shopkeeper's son, seemingly destined for a dreary and limited life as a draper, suddenly was in the most important city in the world, learning the most revolutionary of theories. His professor was none other than T. H. Huxley, the man so ferocious in his advocacy of evolution that he became known as "Darwin's bulldog." Darwinian evolution inspired Wells' writings forever after.

In general, Wells cared less about the specifics of technology than about the prospects for humanity.

After leaving college, Wells became a science teacher, and even managed, in 1893, to write a biology textbook. Otherwise, his life was rather miserable. He'd smashed himself up playing football, enduring a crushed kidney, and was an invalid on and off for the next decade. Worse, in a state of sexual infatuation, he'd fallen in love with his pretty cousin Isabel Wells and, in 1891, married her. The sensual fever soon broke. Wells felt trapped, that sensation he most intensely loathed. His eye wandered. He became embroiled in an affair with a student, Amy Catherine Robbins, and Isabel found out. Later, in his semiautobiographical novel *Tono-Bungay*, Wells would re-create the pain of the revelation, the negotiation and the divorce, while putting it in a cosmic perspective: "Every wrong done has a certain justice in it, and every good deed has dregs of evil."

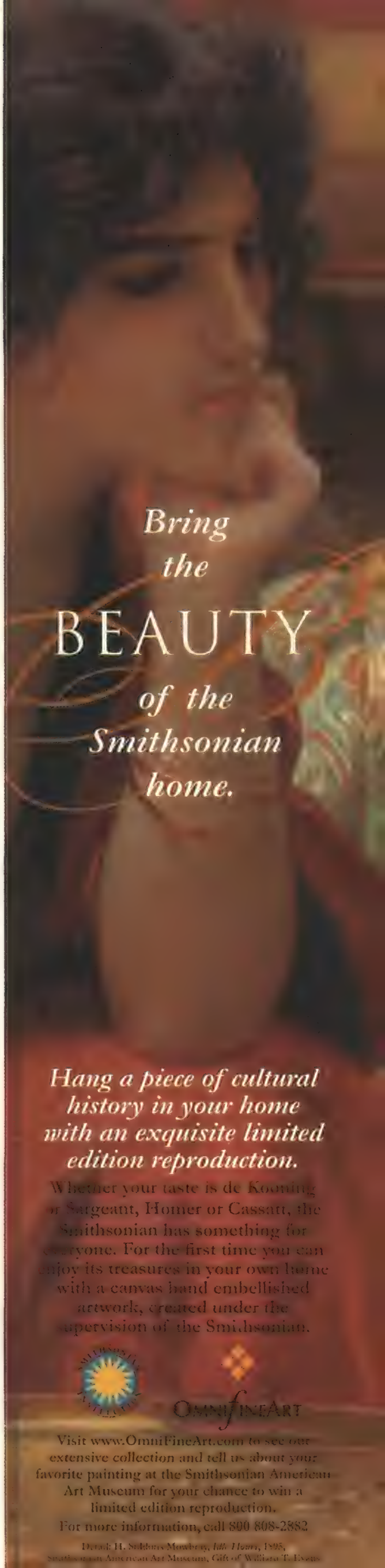
He married Miss Robbins, and—his belief in women's independence notwithstanding—unilaterally decided she needed a new name. He called her Jane. She stabilized his life, gave it order, gave him a home and, eventually, two loving sons, all the comforts of traditional English domesticity. And she typed! Wells had found the perfect partner: someone infinitely tolerant of his escapades and capable of cleaning up a manuscript.

Wells had been jotting down stories his entire life and, in the early 1890s, turned to writing full-time. He wrote some theatrical reviews and scientific essays, and kept reworking a short story he'd started back in the 1880s, while still a student. It was called "The Chronic Argonauts." In 1895 he finally published it as a finished novel—*The Time Machine*. It was an instant, stunning success.

Other writers had transported characters backward or forward in time, à la Rip Van Winkle, tens or even hundreds of years. But Wells' Time Traveller (he has no other name in the novel) voyages 800,000 years into the future, at the controls of a machine. He discovers a time in which the class divisions of Victorian England have led, disastrously, to two distinct human species: the childlike, incompetent Eloi, and the monstrous, subterranean Morlocks (who occasionally come out at night and eat the Eloi). Not a cheery tale, this one.

Wells believed in evolution as a process, but—like his teacher Huxley—did not have any confidence that it was progressive, that it would make us better creatures in a happier world. Evolving toward what? That was Wells' question.

His Time Traveller keeps moving, peeking ahead into the farthest realm of time, when humans have disappeared entirely and primitive crablike creatures crawl sluggishly on the shore of a dismal sea, all prefiguring the extinction of life itself.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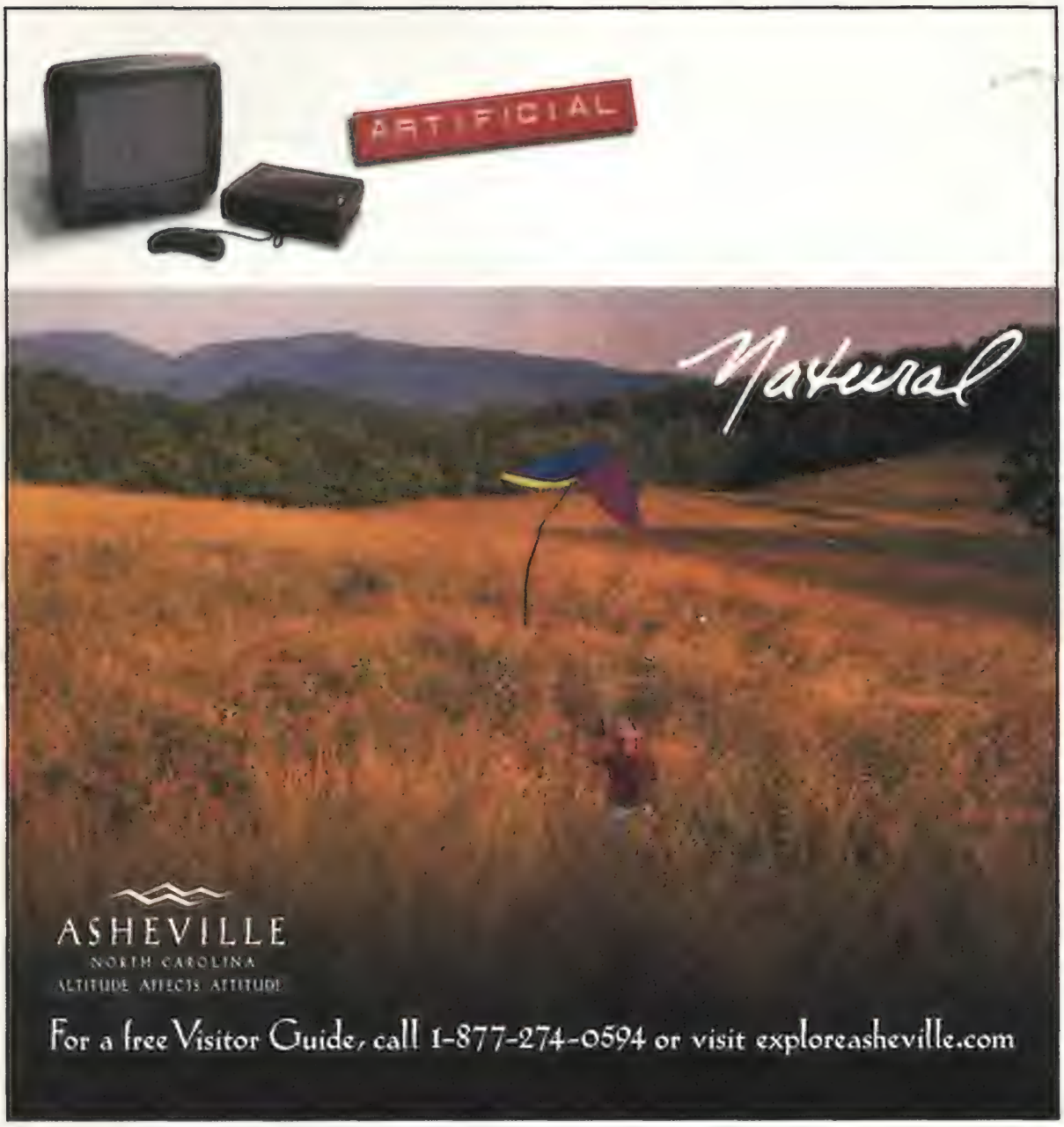

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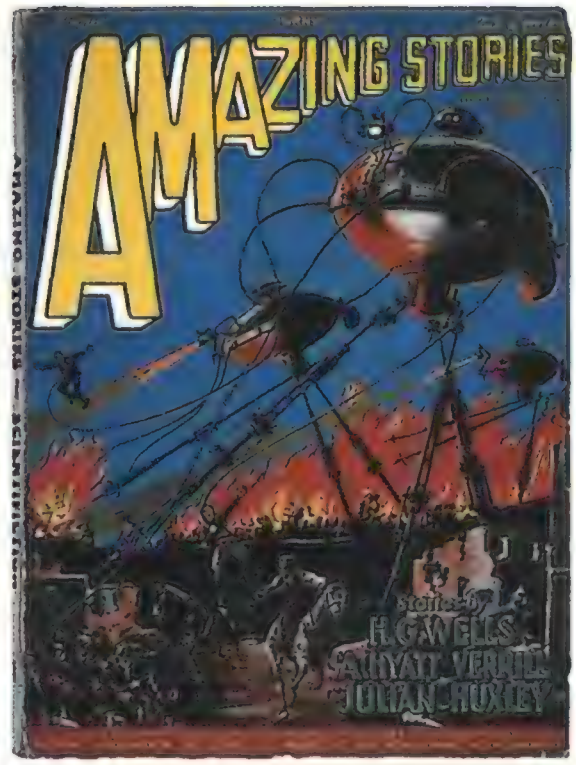

Wells' notion of hostile Martian invaders took hold of the public imagination.

Unlike Jules Verne and other writers of fantastic tales who'd come before, Wells focused on the possibilities of science, without worrying terribly about the current state of knowledge. In general, he cared less about the specifics of technology than about the prospects for humanity. All great science fiction today follows the same general rule—it's not the gadget that matters, but the characters and their culture.

The Time Machine proved transformational. Intellectuals sought Wells' company. He found himself at fashionable parties—a traumatic experience, as Wells remained dreadfully conscious of his servant-class background.

"I see you *like* caviar," someone commented at a party, as Wells piled the foreign stuff onto a plate.

"Love it," he lied.

Despite some slight discomforts, these were the best years of Wells' literary life. He became the intimate friend and debating partner of such literary lights as Joseph Conrad, Ford Madox Ford, Stephen Crane and Henry James. He churned out novel after novel, each a future classic of science fiction—and each dealing, in its own way, with human hubris. In *The Island of Doctor Moreau* (1896), an exiled scientist plays God by creating humanlike animals, and ultimately

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pays with his life. *The Invisible Man* (1897) was another cautionary tale of science gone awry. And in *The War of the Worlds* (1898), Wells reminded his countrymen, guilty of their own imperialist conquests, that there might someday be a power greater than the British empire. (The Martian attack, not coincidentally, is focused solely on England.)

In 1900, with almost a dozen books to his credit, Wells finally had enough money to build himself a proper home. Spade House, as it was called, sat on a hilltop in Sandgate, with a view of the sea.

There, and then, Wells found himself in the perfect place at the perfect time. He was stunningly successful, had his health back, and was brimming with ideas. He was poised at the dawn of a new century, a citizen of the world's greatest empire, riding a wave of expanding literacy in a time when radio and television remained several decades in the future. People read novels. They read H. G. Wells.

And then he made a fateful decision. He would try his hand again at nonfiction. In 1901 he produced a provocative little book called *Anticipations of the Reaction of Mechanical and Scientific Progress Upon Human Life and Thought.*

In 1938 Orson Welles caused a panic with his adaptation of *The War of the Worlds.*

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It was another fabulous commercial success. Wells could do it all! In a matter of months he was giving a lecture to the Royal Institution, grandiosely titled "The Discovery of the Future." He had a squeaky voice, and tended to mumble through his mustache, but still his words were treated as the most precious wisdom.

All of a sudden, Wells wasn't just some poor kid who'd become a writer. He was a prophet. "Among other people who were excited by *Anticipations*," he wrote in his autobiography, "was myself. I became my own first disciple. . . . " His artistry, some would argue, never recovered.

In *Anticipations* and later works, Wells developed his vision of the future. He believed that, for mankind to survive, there would have to be a new world order. It would be conceived and governed by a scientific, technologically trained elite, who would outlaw war, abolish the nation-state, install a world government. Democracy would be carefully reined in, to prevent the uneducated masses from being manipulated by demagogues. Resources would be distributed equitably. Traditional institutions would fall away; the government

In California, Wells was entertained—on the tennis court—by Paulette Goddard.

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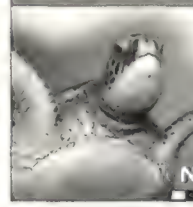

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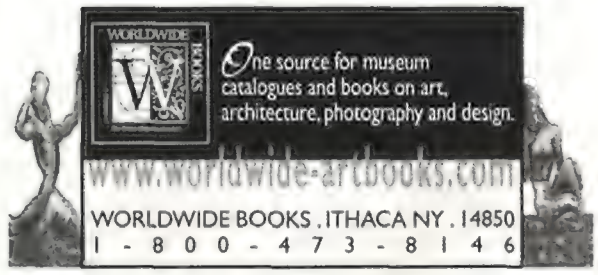
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Wells had a decade-long affair, and a son, with the young writer Rebecca West.

would now become the preeminent guardian of children. Religion would fade. Marriage would be less restrictive. The monarchy, needless to say, had to go.

Anticipations drew the attention of Beatrice and Sidney Webb, leaders of the Fabian Society, the most prestigious and well-heeled band of socialists in England. Wells joined, and helped bring young people into the Fabian fold. But he also came to view the established Fabians as too stodgy, a drag on the revolution. The most famous Fabian, playwright George Bernard Shaw, considered Wells an "egotist" and a "spoiled brat."

Then things got really nasty. Wells had by this time begun tapping into new possibilities for erotic adventure. "'Thou shalt not,'" he wrote, was a phrase he accepted "with extreme reluctance and a sustained protest."

He initiated an affair with Rosamund Bland, daughter of a prominent Fabian. Her father, she said, was showing incestuous interest in her, so Wells charged to the rescue "by absorbing her" himself. When that ended, amid much outrage, he began a relationship with Amber Reeves, also a daughter of prominent Fabians. Though Wells merely wanted "an incidental refreshment," Reeves eventually bore him a daughter. When her father found out about the affair, he vowed to shoot Wells.

All this was much more exciting than arguing politics.

Wells resigned from the Fabians in 1908 and fictionalized the contretemps in a scandalous novel, *Ann Veronica*. Jane stood by her husband throughout—"She had always regarded my sexual imaginitiveness as a sort of constitutional disease," Wells wrote.

Next came the young English writer Rebecca West, 19 when they met, beautiful and brilliant. She had reviewed a novel by Wells, unfavorably, and he'd invited her to lunch. What ensued was a stormy ten-year relationship, which produced a son, Anthony. West hated Jane Wells; she demanded that Wells divorce his wife and marry her. He refused.

"You set out in life to be a free woman," Wells reminded her.

"But is it my fault," she countered, "that I have to be a free mother?"

(Years later, while still involved with West, Wells would find an answer with a new paramour, birth control advocate Margaret Sanger.)

Meanwhile, Wells had epic literary feuds. For years he squabbled, in the most formal of tones, with Henry James. They differed drastically over the mission of "the novel." James believed in art for its own sake. His literature did not lecture. He was content to describe the world as it was, letting the details speak for themselves. Wells could never be so complacent. For him, art was a means to an end, the end being nothing less than a radically revised civilization.

"He did the worst thing possible," Wells scholar Patrick Parrinder told me. "He not only had no interest in writing a novel like Henry James, he had the cheek to tell Henry James he had no interest."

Finally, Wells did the unthinkable, explicitly attacking James in print. In his 1915 novel *Boon*, Wells famously compared James' style to a "magnifi-

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cent but painful hippopotamus resolved at any cost, even at the cost of its dignity, upon picking up a pea which has got into a corner of its den."

Wells soon apologized in a letter to James, but James would hear none of it. They'd never see each other again; James died the next year. Wells kept up the argument on his end for years to come, but the literary establishment was clearly on the other side. Wells' style of fiction—as Virginia Woolf pointed out publicly in the early 1920s—was becoming woefully outdated. But that did not stop Wells, who—though never fully abandoning fiction—had gradually transformed himself from a serious literary novelist into a full-time didact.

In the years since *Anticipations*, Wells had written a number of successful novels—many autobiographical, most comic—about the role of class and the plight of the "little man" in English society. Later, he would reflect that his role "has always been that of a propagandist, direct or indirect, for world socialism." That role would become more explicit with the onset of World War I. Credited with the phrase "The war that will end war," Wells published a book by that title in 1914, and with it, entered the arena of international affairs. He lobbied for a league of nations and, after the war, became frustrated with the one that emerged.

For a few years, he turned his attention to the modest goal of educating mankind. "Human history," he determined, "becomes more and more a race between education and catastrophe." He convened experts, mined their knowledge and wrote, in 1919, *The Outline of History*. To find a piece of writing as broad in scope you'd have to go back to Genesis. He begins with the formation of the sun, and takes it from there. At the height of its popularity, the two-volume *Outline* outsold every other book by a living author. Wells then teamed up with Julian Huxley, the scientist

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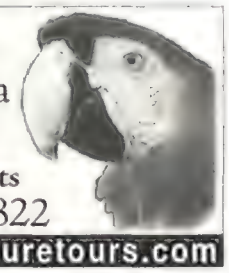

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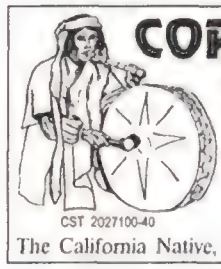

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grandson of T. H. Huxley, and with his own son George, to write another wide-ranging, influential textbook, *The Science of Life*, published in 1931. All the while, he was turning out novels and prophetic tomes, addressing the nation on the BBC, dabbling in Hollywood movies and publishing essays widely.

The central library in Bromley keeps a Wells archive, a dizzying, groaning oeuvre, including innumerable fat novels that only serious Wellsians have ever heard of. Wells produced more than 100 books, plus countless essays and newspaper articles, throughout a writing career that spanned five decades. You have to wonder: Did the man ever write a sentence that he didn't publish? At his best, Wells was a marvelous writer. At his worst, he was unreadable. In his autobiography he admitted that "much of my work has been slovenly, haggard and irritated, most of it hurried and inadequately revised, and some of it as white and pasty in its texture as a starch-fed nun."

By the end of his life, Wells was considered something of a crank, rambling on about world government and human rights.

"He became obsessed with his idea of a world-state," John Partington tells me. Partington is the 27-year-old editor of *The Wellsian*, the journal of the H. G. Wells Society. Fans of H. G. Wells aren't as numerous as Jamesians or Conradians or Woolfians, but they're dedicated, and a bit resentful.

"Most people have heard of him, but don't read him," Partington says flatly. (The sad, unspoken truth is that were it not for Orson Welles' historic, panic-inspiring 1938 radio adaptation of *The War of the Worlds*, or countless other popularizations of Wells' science fiction since, many people might not know of him at all.)

Partington agreed to accompany me on a jaunt to the English countryside to visit sites associated with Wells. We headed southeast, along the M20, a freeway slicing across the pastures of Kent. Those fields would soon explode in golden hues as the rapeseed plants blossomed—a normally sanguine event marred, this particular year, by public consternation over the accidental use of a small percentage of genetically modified seeds. This was a story breaking on the very morning of our trip, and I kept thinking: What would Wells say?

When you read a lot of Wells, and see the range of his mind and the confidence of his intellect, you realize he would have had a sage opinion on almost anything to do with science,

technology, marriage, politics, war and the general destiny of the species.

The very existence of the motorway, allowing us to speed to the Channel, might have thrilled Wells, but he would have been even more taken with the incredible tunnel that allows trains to travel from England to France or back again with a mere 20 minutes of darkness. The geographical obstacle that stopped Hitler in Wells' final years had vanished in a feat of engineering—one that, Partington points out, Wells had presaged in 1905 in *A Modern Utopia*. Were he with us, I think Wells would quickly opine that the next step should be the obliteration of the political boundaries. Everything connects to the world-state, if you think about it.

We reached Sandgate, a sleepy beach town. Spade House, a century old, remains in fine condition. A couple of plaques on an exterior wall identify the place as the former home of Wells. It's now a home for the elderly. The proprietors, Don Faulkner and Nina Morgan, agreed to show us around.

Inside, there wasn't the slightest hint of H. G. Wells, his obscure wife or their two sons. His furniture was gone. We stood in the room where Wells had played floor games with his children, but there wasn't so much as a solitary, residual tin soldier.

Faulkner took us to a small outbuilding. Maybe Wells had written here, he said. But he wasn't sure. The most basic facts of Wells' occupation have faded. Where did he write?

Before we left town, Partington and I stopped at the local library. We asked the librarian if she had any books by Wells. She had one: a once controversial, now utterly unread novel called *The New Machiavelli*.

"He's very dated now, isn't he," the librarian whispered.

We drove to Rye and climbed some cobbled streets to the summit of the village. There, just a few steps from a tenderly maintained 12th-cen-

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tury church, is Lamb House, the fabled home of Henry James. It is owned by the National Trust. It contains his furniture and his books. Lamb House is everything that Spade House is not: a monument to literary genius, preserved for posterity.

The lesson? Maybe it's simply that James was the greater talent. But I think it also shows that Wells lost that literary argument. The things that last are not the predictions of the future, no matter how prescient some may be. Characters last. Beautiful writing lasts. A compelling narrative lasts. Art survives long after ideas go extinct—particularly if the art is exceptionally good, and the ideas, less consistently so.

By the early 1940s, it appeared that Wells, in his passion for government over individuals, was on the wrong side of history—that his scientific utopia, led by a powerful elite, bore an uneasy relationship to the totalitarian horrors of Nazi Germany and the Soviet Union. Already, in the early 1930s, while one grandson of T. H. Huxley was collaborating with Wells, another—Aldous—was writing a spoof of Wells' ideas in his satirical novel, *Brave New World*. In 1941 George Orwell, who had grown up adoring the writings of Wells, said in a withering essay that Nazi Germany was what Wells had been lobbying for all his life.

It didn't help that Wells had flirted with eugenics in *Anticipations*, raising the possibility that the elites of the future will kill off the diseased, ill-formed or unintelligent members of the human race.

By the end of his life, Wells had backed off from eugenics, and was widely championing the cause of human rights. But he was also despairing. He spent World War II living in London, even during the V-2 rocket attacks. One of his final books, *Mind at the End of its Tether*, published in 1945, is an almost incomprehensible moan of pessimism. "The end of every-

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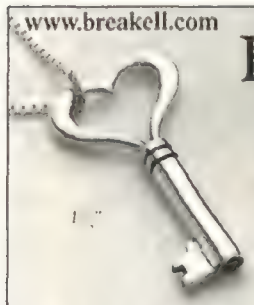
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thing we call life is close at hand and cannot be evaded," he wrote.

He died in 1946, infinitely frustrated. His world-state had not come about—and he'd lost his audience.

Today, in Wells' hometown of Bromley, the closest thing to a monument to the writer is a three-story mural that features a portrait of Wells and scenes from his more popular novels. A block away, a small, blue plaque marks the spot where Wells was born. But his childhood home is long gone. In its place is a huge department store, overflowing with the spiked shoes and leather jackets and all the consumer desirables of a churning capitalist civilization—one that has entered a new, boisterous era of globalization.

Wells foresaw advances in communications and transportation that would make nation-states irrelevant. Today, our planet is surrounded by communications satellites. We are hooked up globally via the Internet. Financiers and politicians and medical authorities convene in Switzerland to discuss emerging pathogens and free trade. Europe, shattered by wars, has come together to form a Union. The United Nations has endured, if imperfectly, as have multinational strategic partnerships like NATO. Most significantly, perhaps, corporations have gone multinational—functioning in many ways as their own world government, relatively free of local control.

It isn't quite what H. G. had in mind. But it isn't so far off, either. In Wells' more confident, big-picture moments, says Patrick Parrinder, he might well view our present world as a scattered path to the same end—Wells' ultimate dream of a world-state. But, adds Parrinder, "no doubt he'd be frustrated that it was taking us so long."

Washington Post writer Joel Achenbach's latest book is It Looks Like a President Only Smaller, from Simon & Schuster.

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Points of Interest [p. 18]

Harry Wendelstedt School for Umpires Website: www.umpireschool.com

The Official Rules of Major League Baseball, Triumph Books (Chicago, Illinois), 1999

Around the Mall [p. 26]

Wolfgang Laib: A Retrospective by Klaus Ottmann, American Federation of Arts, 2000

Traffic [p. 36]

Moving Beyond Gridlock by Robert T. Dunphy et al., Urban Land Institute (Washington, D.C.), 1997

"Commuting" (special issue), *The Economist*, September 5, 1998

Stuck in Traffic: Coping with Peak-Hour Traffic Congestion by Anthony Downs, Brookings Institution (Washington, D.C.), 1992

Our Nation's Travel: 1995 NPTS Early Results Report, Federal Highway Administration, September 1997

Giant Pandas [p. 46]

Smithsonian National Zoo's giant panda Website: pandas.si.edu/

Animal Planet's Project Panda Website: www.animalplanet.com

Pandas by Chris Catton, Facts on File Publications (New York), 1990

Pandas: Giants of the Bamboo Forest by Keith and Liz Laidler, BBC Books (London), 1992

Science from a Plane [p. 56]

The Blue Planet: An Introduction to Earth System Science by Brian J. Skinner and Stephen C. Porter, John Wiley & Sons, 1995

Edge City: Life on the New Frontier by Joel Garreau, Doubleday, 1991

Meditations at Sunset: A Scientist Looks at the Sky by James Trefil, Charles Scribner's Sons, 1987

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Grandma Moses [p. 68]

Grandma Moses in the 21st Century (exhibition catalog) by Jane Kallir, Art Services International (Alexandria, Virginia), 2001

Grandma Moses by Otto Kallir, Harry N. Abrams, Inc., 1973

Grandma Moses: My Life's History by Anna Mary Robertson Moses, Harper & Brothers, 1952

Grandma Moses: The Artist Behind the Myth by Jane Kallir, Clarkson N. Potter (New York), 1982

Churchill in America [p. 80]

Churchill: A Life by Martin Gilbert, Henry Holt, 1991

Winston and Clementine, edited by Mary Soames, Houghton Mifflin, 1999

Churchill's Grand Alliance by John Charmley, Harcourt, Brace, 1995

Garter Snakes [p. 92]

The Snake Scientist by Sy Montgomery, Houghton Mifflin, 1999

Snakes: The Evolution of Mystery in Nature by Harry Greene, University of California Press, 1997

The Garter Snakes: Evolution and Ecology by Douglas Rossman et al., University of Oklahoma Press, 1996

Shakers [p. 98]

Shaker Life, Art, and Architecture: Hands to Work, Hearts to God by Scott T. Swank, Abbeville Press, 1999

Simple Gifts: A Memoir of a Shaker Village by June Sprigg, Alfred A. Knopf, 1998

Growing Up Shaker by Sister Frances Carr, The Shaker Society (Sabbathday Lake, Maine), 1995

Shaker Your Plate: Of Shaker Cooks and Cooking by Sister Frances Carr, University Press of New England (Hanover, New Hampshire, and London), 1987

H. G. Wells [p. 110]

H. G. Wells: Desperately Mortal by David C. Smith, Yale University Press, 1986

The Invisible Man: The Life and Liberties of H. G. Wells by Michael Coren, Atheneum, 1993

Experiment in Autobiography by H. G. Wells, Little, Brown, 1934

Wells Society Website: www.rdg.ac.uk/~lhsjamse/wells/wells.htm

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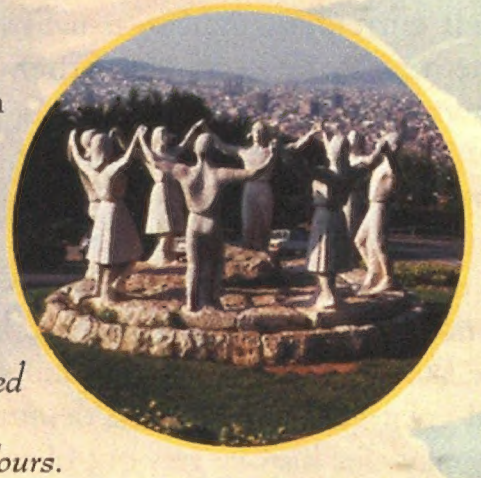

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THE LAST PAGE

Happily Ever After?

BY CHALMERS M. ROBERTS

AT A CERTAIN AGE, MANY OF US TURN TO THE OBITuaries after scanning the front page of our daily newspaper. Since I'm going to be 91 later this year, I'm deep into this morbid habit, but I recently discovered the perfect antidote. I've started to read the "Engagements and Weddings" columns, those paid notices inserted in newspapers by proud parents or by the happy couples themselves. Here are found the hopes and ambitions of life, put down at the moment of maximum anticipation—and in face of the fact that the statisticians tell us about half of all these marriages will fail. Never mind.

The announcements begin, "Mr. and Mrs. So-and-So are *pleased* to announce the marriage of . . . " The operative word is usually "pleased," although sometimes parents confess to being "happy" or "delighted" to announce, or even wish to "joyfully announce" the engagement.

Parental divorces lead to oddities. The groom is given as "the son of" both Jane and John and Mary and William—four parents no less. Most likely divorce of the parents may be divined from their current residences, usually one up North and the other down South.

Sometimes the happy couple boast about one or another set of parents: dad is a "senior partner" in this or that (named) prestigious law firm. Or the groom is not only the son of so-and-so but also the grandson of the late Navy commander so-and-so, or perhaps his "paternal great-grandfather" also deserved to be named. Occasionally this history gets out of hand. I remember reading about one bride and groom trading "greats" back to the American Revolution, and I imagine they never resolved which of them had the most important ancestry.

An intriguing part of this pursuit is what it tells me about the current employment of the happy couples. First, and strikingly so, I haven't seen any bride-to-be telling us that she is simply planning to stay home and raise the children. They all have jobs, and some let you know that "the bride kept her maiden name." Many couples are in graduate school. Some work at the same place: Ms. So-and-So "is the corporate sales manager" while he is the owner of this named company. Or she "does medical research" while he is "president of the software firm." Or she is employed by a stockbroker, he by a bank. Or he, proudly, was "the starting quarterback" at his named university and now is "a graduate assistant in the football program" at another university while she is "a fifth-grade teacher" at a public school.

Here's an unusual pair: they "met in Ecuador where she taught English" and "he established a bouquet export business." Increasingly, both bride and groom are into the dot.com world, though I've never seen anyone be crass enough to mention stock options.

One wonders how these youngsters' dreams will turn out. I'd bet on the couple who "met at" this particular church "where they are members of the choir." The "professional ballerina" marrying "a licensed real estate agent" seems iffy. And it's hard to tell about those whose wedding dates are given as May or June of 2002. Or the pair who plan to have "a medieval wedding" followed by "a second celebration."

I've never seen a paid notice for a couple of oldsters, but here's a story I found in a county weekly. The widow, 79, and the widower, 78, were introduced by friends, but what sealed it was a mutual interest in the Internet. Said she: "I like to think Ken and I are a romantic testimony to computers." Well sure—anything to keep the newlyweds busy, along with five children, seven grandchildren and two great-grandchildren.

WALLY NEIBART

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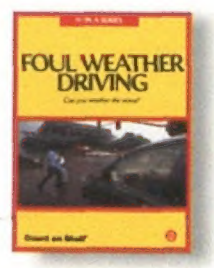

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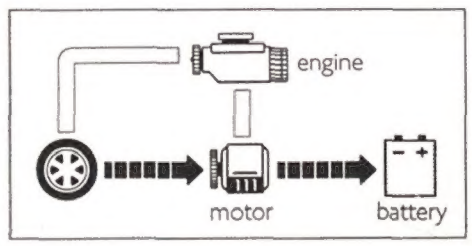

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